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HOUSE OF REPRESENTATIVES, UNITED STATES

HEARINGS

BEFORE THE

U.S. Cong. House.

" COMMITTEE ON AGRICULTURE

DURING THE

SECOND SESSION OF THE SIXTY-FIRST CONGRESS

IN

THREE VOLUMES

Vol. I. HEARINGS ON ESTIMATES OF APPROPRIATIONS FOR THE
FISCAL YEAR ENDING JUNE 30, 1911

Vol. II. HEARINGS ON BILLS FOR THE PREVENTION OF "DEAL-
ING IN FUTURES" ON BOARDS OF TRADE, ETC.

Vol. III. HEARINGS ON MISCELLANEOUS BILLS

VOL. III

SIXTY-FIRST CONGRESS, SECOND SESSION

WASHINGTON

GOVERNMENT PRINTING OFFICE

1910

552
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Pat 27

521
722
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JUN 23 1910
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PROTECTION OF WATERSHEDS OF NAVIGABLE STREAMS.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., Wednesday, February 23, 1910.

The committee met at 10.30 o'clock a. m., Hon. Charles F. Scott in the chair.

The committee thereupon proceeded to the consideration of the bill (H. R. 11798) to enable any State to cooperate with any other State or States, or with the United States, for the protection of the watersheds of navigable streams, and to appoint a commission for the acquisition of lands for the purpose of conserving the navigability of navigable rivers.

The CHAIRMAN. Pursuant to an order made some days ago, the committee has met this morning to consider H. R. 11798, commonly known as the Weeks bill, relating to the protection of the watersheds of navigable streams and the purchase or acquirement in other ways of forest lands in the White Mountains and the Appalachians. Mr. Weeks called this morning to say that on account of another hearing it would be impossible for him to be present at the moment, although he hoped he might come in later. I notice, however, that Representative Currier, of New Hampshire, who is also identified with this legislation, is present, and I will ask him to make such a statement as he desires and to present other gentlemen who wish to be heard on the subject.

Let me suggest to members of the committee that the hearing will probably be expedited if gentlemen are allowed to conclude their remarks before being interrupted by questions.

Mr. CURRIER. Mr. Chairman, Mr. Weeks expects to return in a few moments, and he asked me to take charge of the hearing until he could get back.

We appear here this morning in behalf of a bill which excites a higher degree of interest in New England than any other proposition pending before Congress, and I think that is also true of the southern Atlantic States. I shall not address the committee at this time, but shall simply present to the committee certain gentlemen who desire to be heard. I will first ask Representative Peters, of Boston, Mass., to speak to the committee.

STATEMENT OF HON. ANDREW J. PETERS, REPRESENTATIVE FROM MASSACHUSETTS.

Mr. PETERS. Mr. Chairman and gentlemen of the committee, several gentlemen will address you in regard to this bill, and I shall try to confine my remarks to the phases of the situation that come particularly under my observation, and try to avoid commenting

on parts that will be presented to you more fully by men who are more capable of speaking on them.

I wish to speak, in the first place, of the intense public interest in this matter. It is one in which the people of Boston, of Massachusetts, and of New England generally, take a most keen and active interest. Editorials are appearing in our leading Boston papers, and in the papers all over New England, urging the support of this measure by Congress. I have received communications (I will read the names of just a few of them) from the Massachusetts Mutual Fire Insurance Company, the Pawtucket Gas Company, the Haverhill Board of Trade, the Appalachian Mountain Club, the Boston Merchants' Association, the American Civic Association, the Boston Chamber of Commerce, the Massachusetts Federation of Women's Clubs, the Massachusetts Civic League, the Massachusetts Wholesale Lumber Dealers' Association, the Massachusetts State Board of Trade, from instructors in our colleges and universities, and from leading citizens in Boston and in the other Massachusetts cities.

I have here an editorial from the Scientific American, which I should like to have go into the record, showing that the recent Paris flood was due to the denudation of certain of the forest lands which drain into the Seine.

(The editorial above referred to is as follows:)

CAUSES OF THE PARIS FLOOD.

[From the Scientific American, February 12, 1910.]

There appears to be a consensus of opinion among the French scientists that the causes of the recent phenomenal rise of the Seine, when it reached the record height of 31 feet 2 inches, are to be found more in geological than in meteorological conditions. The basin of the Seine and the streams that are tributary to that river consists of a light absorbent soil; and, as the slopes are gentle, any sudden precipitation is ordinarily absorbed by the ground. In winter, when the soil is either frozen or saturated with the rains, there is a risk that the run-off of a heavy precipitation will be so large and sudden as to overtax the capacity of the river channels. These conditions obtained to a marked degree during the recent continuous heavy rainfall and flood. Meunier, the geologist, is of the opinion that the heavy rains preceding the flood found the soil of the watershed so thoroughly impermeable, because of saturation, that the water ran off as swiftly as it would from the surface of an asphalted or cemented street. Furthermore, it seems to be generally agreed that the denudation of the forests in the higher regions of the watershed has been a contributory cause to the flood. Not only do the trees assist evaporation, but the forest undergrowth also exerts a material influence in retarding the flow of the water.

Mr. PETERS. New England has paid its part toward the forest reserves of the country. Two hundred million acres have been taken in forest reserves in the West, for which New England has paid her part, and pays her part for maintaining them. Those 200,000,000 acres which have been put in forest reserves only affect the watershed which produces slightly over 3 per cent of the water power of the country; whereas the watershed in the White Mountain Forest Reserve (the one which it is proposed by this bill to take) affects 37 per cent of the total water power of the United States. Those figures are taken from the last census.

The importance of preserving the forests for their effect on the streams is too great a one for me to go into. I will quote here from a report entitled "Commercial importance of the White Mountain for-

ests," made by the Forest Service of the United States Department of Agriculture (Circular 168), in which it is said:

The timber supply in the White Mountain region, including spruce, which will last about twenty years, and the hard woods, which are as yet both abundant and cheap, is of importance not only to New England, but also to the country at large. These forests are near to a great population, and the pinch of scarcity in the timber supply is already felt everywhere. As the general population grows rapidly in numbers the rate of consumption increases, but the supply does not increase correspondingly. On the steep slopes the spruce forests will last only four or five years.

The protection of the mountain forests from fire is of great importance, because fire consumes the soil, rendering it in many places permanently impaired and even barren. This prevents future timber supply and greatly facilitates erosion and rapid run-off of water. Fires have already caused irreparable damage.

I shall not take up the time of the committee further. My own committee is sitting now, and I feel that I must get back to it. But I want to bring, particularly, before you the tremendous public interest in this measure. The bill was passed by Congress last year, and I think that with this public interest behind it the people who are supporting may fairly ask the committee to make a report and bring up the bill itself, so that it can be discussed before Congress by the representatives of the country.

(Mr. Peters subsequently submitted for incorporation in the record the figures above referred to by him, the same being as follows:)

Data from Page CCCXX, Volume VII, Twelfth Census, proving that the present forest reserves are situated in States which use only slightly more than 8 per cent of the country's water power, and that their beneficent influence on stream flow affects only a slightly greater percentage:

States using greatest amounts of water power, United States.

	Horsepower.
New York	368,456
*Massachusetts	187,848
*Maine	167,204
*New Hampshire	112,755
Wisconsin	99,007
*Vermont	87,615
Pennsylvania	86,228
*Connecticut	71,414

States marked (*) would have their water power benefited by the proposed White Mountain Forest Reserve.

Total horsepower of such States, 683,986.

Total horsepower used in the whole United States, 1,727,258.

Percentage benefited by proposed White Mountain Forest Reserve, 37 per cent.

States including present forest reserves, and horsepower they use.

	Horsepower.
Washington	7,148
Oregon	21,588
California	5,164
Nevada	920
Arizona	442
New Mexico	550
Idaho	1,942
Utah	4,028
Montana	9,965
Wyoming	667
Colorado	1,596
Kansas	8,820
Total	62,848

Percentage of total horsepower used in the whole United States, 3.6 per cent. From the above it can be seen that one of the greatest benefits of forest preservation, the insured maintenance of a regular flow in the rivers, disturbed by a minimum of floods and droughts, profits only about 4 per cent of the water-power industries of the United States, because the forests reserved have been located without reference to the wants of water power already developed. We must now think of protecting such water power. Speaking purely as regards water power, we have secured something we will want in the future, undeveloped water powers, while we have hesitated to preserve what we are already using and see being gradually destroyed for us by the denudation of the watersheds, resulting in irregular flow, disastrous to power users.

Mr. CURRIER. I may say, in this connection, that the people in New England ardently favor the conservation of natural resources. They are willing to stand by great appropriations for the Reclamation Service. They are entirely willing that enormous tracts of land that would otherwise be sold, and the proceeds of which would go into the Treasury of the United States for the benefit of all the people, shall be taken for the benefit of the West. They are willing that tens of millions may be spent for the improvement of the rivers of the West, and they are entirely willing to pay their share of the outlay; but they feel that they are not being generously or fairly treated in this matter.

STATEMENT OF MR. GEORGE FILLMORE SWAIN, OF CAMBRIDGE, MASS., PROFESSOR OF CIVIL ENGINEERING AT HARVARD UNIVERSITY.

Mr. SWAIN. Mr. Chairman, I should like to say, first, that I represent at this hearing several bodies in New England. The Boston Chamber of Commerce has asked me to represent it. It numbers 3,500 members, or thereabouts, and is vitally interested in this question. I also represent the Appalachian Mountain Club, numbering a good many hundred members (I think over a thousand), who are very much interested in this question; also the Massachusetts Forestry Association and the Boston Society of Civil Engineers.

The matter of the preservation of the slopes of the mountains apparently has been surrounded with some degree of mystery by various publications which have been made about it. In reality, however, it is a simple matter, and I want to try to make it this morning just as simple as I can.

Two papers referring to this question have come out recently—one the report by Professor Moore, of the Weather Bureau, and the other the report by Colonel Chittenden, of the United States Engineers. Those documents are lengthy, especially Colonel Chittenden's, but they do not affect our case in the least. We do not urge that forests shall be planted on land which is better suited for cultivation by crops. We urge the preservation of forests on the mountains and slopes which are not suited for cultivation. The papers which have been published do not at all affect that question. I want to show you briefly this morning, if I can, that substantially all the authorities are agreed on the importance of the preservation of the slopes of forests—slopes which are not suited for cultivation. Professor Moore's paper does not touch upon that matter at all; neither does Colonel Chittenden's.

The legality of your action, as I well understand, depends entirely on the relation of this question to the navigability of the streams. In regard to that, I want to show you that the authorities are united.

Professor Moore's paper contains certain conclusions at the end, the first four of which relate to the influence of forests on rainfall. I shall not discuss them unless I am asked to, because that is not a matter in which we are interested. Our case does not depend upon any influence of forests on rainfalls, although personally I believe that the forests do increase the rainfall; and I am ready to present one or two simple arguments which I think will show any of you that it is very reasonable to believe that they may increase the rainfall. However, I shall not refer to that matter at this time.

The question at issue is the relation between forests and floods, but not so specifically the relation between forests and floods as the relation between forest and erosion. The critics of the forestry movement urge that forests do not reduce the highest floods. They say that the floods on the streams are just as high from forested regions as they are from deforested regions. It was not necessary for us to have Colonel Chittenden's paper to prove that, because engineers have admitted it for years. Here, for instance, is an extract from a German work on engineering, published a number of years ago, which I will read to you:

Authorities are quite united in declaring that woods should be preserved, so far as possible, and that deforested areas, particularly in mountain regions, should be replanted, since the woods moderate the rapid discharge of the waters, the layer of vegetable mold increases the percolation and diminishes the evaporation, forming a collecting basin, which feeds the springs later, and in which particularly the snow is held several weeks longer and melts slower than in the open areas. This favorable effect of the forests on the distribution of the flow of water, as well as upon the soil and climate, is recognized in most civilized lands and has led to the enactment of laws for the protection and the increase of forests. The thick forest of the Riesengebirge has exerted no noticeable effect upon the floods which occurred there in consequence of the great rainfall of the 2d and 3d of August, 1888, and of July 20, 1897. One should not, therefore, expect too much of the forests in diminishing the highest floods. Their effect is greater on the medium floods and in the prevention of erosion and in the holding back of suspended matter.

So we knew that before. Engineers were agreed upon that.

In dealing with this effect it must, first of all, be recognized that we are dealing with a very variable matter. Of course the source of floods is rainfall and snowfall, and the phenomena of rainfall and snowfall are so exceedingly variable that statistical proof of the relations between the two is not possible. I think it is hardly possible even with a very long series of observations. For instance, when you see in the report on streams in Massachusetts that in 1871 on a certain basin there was a rainfall of 46 inches, of which 33 per cent was collected in the basins which supply the city of Boston, while in 1891 there was the same rainfall (46 inches), and 69 per cent (more than double) was collected in the same basins, you see with what a very variable matter we are dealing. So that statistical proof by figures relating to floods or flow is exceedingly difficult, if not impossible. In the absence of that we are thrown back on mere matters, not of empiricism, but of common sense, of common observation from fundamental principles, and I maintain that it is perfectly easy to see from fundamental principles the relations involved here.

Everybody who has been in a forest knows that the forest cover, the humus which covers the soil, forms a retentive layer which collects the water, holds it back, prevents it from running off, and en-

ables it to percolate into the soil. Of course if we have a very severe storm the retentive layer is filled, and after it is filled it can hold back no more, and the excess flows off. That is the argument that is made by those who oppose the conservation of forests. They say that as soon as that layer is filled the water flows off. But that is no reason for not having the reservoir.

For instance, Colonel Chittenden in his paper here makes this statement:

The forests are virtually automatic reservoirs, not subject to intelligent control, and act just as the system of reservoirs once proposed by the French Government for the control of floods in the River Rhone would have acted, if built. These reservoirs were to have open outlets, not capable of being closed—

That is, ordinary lakes—

which were intended to restrain only a portion of the flow. A careful study of their operation in certain recorded floods showed that they would actually have produced combinations more dangerous than would have occurred without them.

Does that mean to any intelligent man that reservoirs on a stream do not regulate the flow? Can anyone imagine such a preposterous idea? The fact that a reservoir or series of reservoirs can not do everything is no reason why they can not do a great deal. And everybody knows what a regulative effect on the flow of a stream a series of lakes in its drainage basin has.

Professor Chittenden says the forest is virtually a reservoir and acts the same as a reservoir. Of course, it is not subject to control, but it acts as a reservoir and feeds the springs and regulates the flow.

The forest forms a million dams which interrupt the flow of the water; and instead of running off swiftly over the slopes, it percolates through the leaves and finds its way into the streams gradually; and it is held back so that a great part of it, a much greater part of it than otherwise could do so, is allowed to percolate into the ground. The forest keeps the water so that it can percolate and gives it time to percolate into the ground and feed the springs.

Therefore, while it is perfectly possible that if you should allow a forest to grow up on a denuded area the maximum floods from that area might under certain conceivable circumstances be as great as they were before, we maintain that the general effect, the average effect, is to regulate those floods. To argue that because the forests do not or may not reduce the greatest floods—although I believe they do reduce the greatest floods—therefore they are not of any value, would be like arguing that a fire-protection system in a city was of no value because after it is established there may be as big a fire as there had been before. I presume our greatest conflagrations have occurred during the time that our cities have been adequately protected by fire systems. Nevertheless, we have had all these great conflagrations.

But the most important matter with reference to the forests is that of erosion, with reference to the legal basis of your action. Everybody who has seen a rainfall on an open, unprotected area, and a rainfall in a forest, knows the great difference between the two. He knows how, in the open area and on the steep slopes, especially, the waters are gathered together into the streams, eroding the ground and carrying the earth away with them; while in the forest there is a protective layer of humus over the ground, and the soil can not be carried away to that extent. It can not be carried away

at all where the protection is adequate. Of course, even bushes are better than nothing. Bushes may grow up, and are better than the open slope, unprotected, but they are not anything like as good as forests. Moreover, in the open, after the forest has been cut off, fire is more likely to occur. In fact, that is where fire generally occurs. The fires that ravage our forests take place in the open areas which have been cut. They burn over the ground and destroy the soil, and thereby reduce its power to prevent erosion.

Besides that, the sun shines down on the open areas and bakes the ground hard, until it is almost like a tinder box in the summer time, and it is much more likely to take fire and much more likely to be eroded. Then the freezing and thawing (which are much more frequent and much more liable to take place in the open than in the forest) open up the ground, as everybody knows. In the spring, when the frost comes out of the ground, we all know how loose it is and how easy it is to carry it away. That is the same action that takes place on the open slopes, where they are not protected. The freezing and thawing loosen the ground; and in the spring, when the floods come, it is very easy for them to carry it away.

The action of the forest, then, is extremely simple. In the summer time it retards the flowing off of the water. In the winter time it retards the melting of the snow. Of course you may imagine combinations of circumstances, as I have said before, where from a forested area you may get as large a flood as you would have gotten from an unforested area. But I do not think anybody can ever make the intelligent people believe that if you retard the melting of the snow and make it take six months to melt instead of four you are going to have anything but a favorable influence on the floods of our streams or on the amount of sediment which is carried by our streams.

With reference to the action and the benefit of forests on the navigation of streams, I maintain that there is a practical unanimity of opinion. I should like to refer briefly to some of the various reports on the subject.

In Mr. Moore's report, on pages 17 to 19, there is a long quotation from Mr. Belgrand and Mr. Valles in regard to the effect of forests in France. Those two men are the two French engineers who have mainly criticised the forests. They wrote their papers in the fifties. Mr. Belgrand wrote his in 1855 and Mr. Valles (whose book I have here) wrote his in 1857. Those two men agree with us regarding the beneficial influence of the forests on the steep slopes which are not suited for cultivation.

Let me read just one sentence from what Mr. Belgrand says, to show you what he does say:

The operation of reforesting is, therefore, excellent when it is practically possible, although it appears demonstrated that the deforesting of the basin of the Seine can not be considered as one of the causes which have contributed to increase or to decrease the height and the number of the floods.

I will refer to that again. That was his idea, which is not shared by many. Most engineers will probably differ from Belgrand in this statement, which was written thirty-five years ago:

But the woods diminish very notably the volume of earthy material transported by the rivers, because they prevent the erosion of land; and it must be recognized that the impoverishment of the earth is much more to be regretted than the disasters caused by inundations.

That is the statement of Mr. Belgrand, who is quoted by those who seem to be in opposition to us, although they really are not.

I have here the book of Mr. Valles, whose paper is quoted by Professor Moore. Here is what he says:

If the demand is limited to the reforestation of the summits and the uncultivated slopes, we wish well of it; but less on account of the diminution of the quantity of water discharged than on account of preventing the erosion of the ground.

If, therefore, we are to understand in this way the advocates of the plan—

That is to say, as being in favor of the reforestation of the steep slopes which are not used for cultivation—

We will not hesitate to join them; but if their claims are more extended, if they wish us to reestablish on a former basis a state of things which has been favorably modified, if they wish to have us prefer the Druidical forests to our modern farms, trees to wheat—we say for the third time, reforestation will not do.

Nobody wants to have the farms sacrificed for woods. We wish to have the forests protected on the mountains and the steep hills which are not suited for cultivation.

One writer who has been much quoted in Mr. Moore's report and in Mr. Chittenden's report is Mr. Lauder, of Vienna. Let me read what Mr. Moore says in that regard:

Mr. Ernest Lauder, chief of the Hydrographic Bureau of the Austrian Government, recently made an exhaustive investigation of the records of the Danube, the great river of central Europe. * * * His conclusions are that progressive deforestation of the country has had no effect in increasing the frequency of floods or in augmenting their height. Among other things he showed that the flood of 1890, which was a summer flood, was severest where it came from the heavily wooded districts.

It is just as well to give the whole of a man's idea if you wish to get truly his position in the matter. I have here a more recent paper of Mr. Lauder in connection with the congress in Milan in 1905, and here is what he says:

The forest exerts an influence in any case on the flow of water.

The retention of the water precipitated is, in a certain measure, greater in the more than in the less wooded basin.

For rains, whose importance exceeds certain limits—in times of floods, for example—the retention in the more wooded basin becomes more intense than in the one less rich in forest lands—

This translation was made abroad. I read it just as it has been translated.

That is to say, that after a certain degree of saturation has been reached the excess of water which the forest held before is set free quite more sensibly, and that after a dry season the influence of rains is felt more rapidly and more progressively in the basin which is less rich in forests, while the reserve takes place in the one where the wooded surface is greater.

It may be stated in closing that the preceding conclusions are entirely in accord with the result of the studies which the Central Hydrographic Office, which is under the author's direction, obtained by examining the question of the influence of the forest on the formation and regimen of high flood waters, and which is opposed to the fact, long considered to be true, that to the presence of forests must be attributed, under all circumstances, a favorable influence on the moderation and even on the prevention of catastrophes due to high water, and to the cutting down of forests a similar influence on the production of such catastrophes or on the quickness of their succession.

A final judgment on the subject of the influence of forests on the regimen of streams can not yet be uttered, the experimental data possessed so far covering only a relative short space of time. Hence, it is important to continue, in the domain of hydrologic science, the researches undertaken up to the present

time, and to complete and investigate thoroughly the ideas given above, the boundaries of which may have to be even closer drawn. Nevertheless, it is believed that this study is useful in this way, that it points out a track to be followed in order to draw near gradually to the end, still so far off, of a knowledge of the movement of the discharges of rivers.

If, now, the final judgment on the subject of the influence of forests on the regimen of streams be unfavorable to the forest to this extent, that there are denied to it certain of the properties attributed to it generally, it does not follow from this that it is necessary to oppose the rewooding of arid surfaces, the replanting of the basins of streams, or the maintenance of plantations of trees. The general utility of the forest is so well settled, the extraordinary appreciation in which it is held as a means of protecting the soil against landslides is so firmly established, its great advantageousness—

As they express it—

especially for the spring district, in holding back earth thrusts and reducing the amount of sediment carried by rivers so important, that these reasons alone justify fully the great possible promotion of forest culture.

That is what Mr. Lauder said—the authority who is quoted by those who apparently are opposed to us in this matter.

Mr. LEVER. And this is a more recent paper?

Mr. SWAIN. This is a more recent paper.

Mr. Cippolletti, who summed up the conclusions of all the writers who contributed to that congress, say this:

But with regard to the régime of high-water flow and ordinary floods there is no material difference of opinion. In such localities the waters running off the surface unite with the springs in providing the supply of water for a river. Thus, all the writers agree that forests exert a moderating influence on the run-off of surface waters, owing to a large proportion of the water being retained by the leaves and other parts of the plants, also on account of a quantity of it being absorbed by the layers of dead leaves, moss, and humus which form the top covering of the forest ground, and partly also to the obstruction which roots above ground form to the rapid flow-off of the surface water by forcing it to remain stagnant in a thin sheet, instead of accumulating in a mass and running off quickly in the shape of brooks, which is what happens on lands where the surface water finds little obstruction and is apt to produce erosion. To this may be added, in the case of cold climates, the additional advantage that the snow lies longer in the forest and melts here more slowly than in the open country. To conclude, forests act as real regulators, obliging the rain water to flow much more slowly to the bottom of the valley than it would do otherwise, and by this means insuring a more uniform and continuous flow in the lower reaches of rivers.

Can the destruction of forests bring about a great deterioration and even the total loss of the layer of cultivable soil of cultivable lands, of those which are next to them or lying beneath them, and, even further off, of the level portions of large valleys? Can it also cause landslips, landslides, and avalanches?

Upon this point it will be very much more easy for me to arrive at a conclusion, because the authors of the papers, without distinction, and all technical experts generally admit that the deforestation of sloping lands, especially if it is followed by a breaking up and cultivation of the soil, will cause the damages and injuries enumerated at the head of this chapter.

I have other authorities that I can cite.

So that I think it is fair to say—and I am fairly familiar with the literature of this subject—that the authorities throughout the world are generally agreed on the importance of the forests on the steep slopes.

Professor Moore's fifth conclusion is that forests may cause excessive precipitation. Of course the ultimate source of all floods is the rainfall; but it does not follow from that that there is nothing which modifies that precipitation and affects the flow of the streams.

Then he says that compared with the total area of a given watershed, that of the headwaters is usually small, and therefore it will

not affect the flow. There is a confusion in many minds with reference to that; and Mr. Chittenden falls into the same confusion of reasoning. Mr. Chittenden argues that the rivers do not overflow up in the mountains; that they overflow down in the lowlands. Of course we all know that. It is not that we want to prevent the overflow of the rivers in the mountains; but it is the quick discharge of the streams from the mountain slopes that makes the floods in the lowlands. The water rushes down these mountain slopes and collects in the reaches of the rivers below which the slope is so gradual that it can not carry it off. Therefore, the floods from these high mountain districts, even though they might be comparatively small, cause the floods in the rivers—in the Ohio River at Pittsburgh and Cincinnati, for instance, just as much as at Louisville and Memphis and New Orleans, where the floods are dangerous. Pittsburgh is away up near the headwaters in comparison with the other places.

The CHAIRMAN. Pardon me for one moment while you are on that point, Mr. Swain, because it is a very important one. If we should concede that in the case of the forested area at the headwaters of the stream, no water would come into the river as a result of rain, whereas if the woods were cut away all the water that fell would immediately come in, your conclusion, of course, would be inevitable. But, of course, such a violent presumption as that is not in your mind?

Mr. SWAIN. Not at all.

The CHAIRMAN. You will concede that part of the rain that falls even on a forested area will come into the streams?

Mr. SWAIN. Certainly.

The CHAIRMAN. And the question is whether the comparatively slight difference between what would come into the streams if the forest were there and what would come into them if the forest were not there would result in floods in the lower reaches of the river.

Mr. SWAIN. Our point is in reference to the suddenness of the discharge. We say that it is not a question of the slight difference of the total amount which would come into the streams. We believe that on the whole, taking the springs into account, there is more that comes in from the forested areas than from the deforested areas. But that is a minor matter. The question is the suddenness of the water flowing in. Of course, if you had a very sudden shower on a rocky surface inclined like a house roof, it would all go in, whereas in the forest some of it would be held back and evaporated. That is true. There would more go in that case; but in the forest it is held back. It is not discharged suddenly into the streams, and therefore, on the whole, the floods are diminished.

But, more than that, more important than whether or not the floods are diminished, is the question of the erosion which carries the material down. We all know how even a small rainfall—a summer rain which sometimes in the mountains comes down pretty rapidly, in sheets; a rain which would not of itself cause a flood in the streams at all—will on a deforested area, on open ground, carry away a great deal of earth with it. These summer rains come down just as severely as any other rains. In fact, they come down more suddenly. Very likely there is more rain discharged in a given time in the summer than at any other time.

The local showers, the thunder showers which come down only over a small area, and which would not cause a flood in the streams at all, carry the earth with them just as much as the longer rains which cause the floods.

Just one point more: Mr. Moore's seventh conclusion is that "the run-off of our rivers is not materially affected by any other factor than the precipitation." In other words, the slope, the character of the ground, the character of the rock, whether there are forests there or not, make no difference in the run-off of our streams; it is simply a question of the precipitation. That seems to me a perfectly absurd statement to make, unless it is qualified.

Then his eighth and ninth conclusions are:

The high waters are not higher and the low waters are not lower than formerly.

Floods are not of greater frequency and longer duration than formerly.

Mr. Moore has previously said that we have not data enough to draw definite conclusions. He says:

All of these problems could be definitely settled beyond the possibility of argument if we had accurate river gaugings from day to day and year to year, together with a full knowledge of the rainfall and of the proportion of the wooded to cleared areas—data that unfortunately we do not have. We must, therefore, reason empirically from the best information at hand; and this insufficiency of data renders less positive the conclusions of all investigators, no matter which side of the question they may be on.

Mr. LEVER. When did he say that?

Mr. SWAIN. In this paper.

Mr. LEVER. This same paper here?

Mr. SWAIN. Yes. And yet he positively draws the conclusion that the high waters are not higher and the low waters are not lower. He ought logically to draw the conclusion that he can not tell whether they are higher or lower. And he does not touch the question of erosion, which is the question on which our case rests.

In regard to the Seine, I want to say just one word. We have recently had a great object lesson in Paris. I have an interesting quotation here which I should like to read to you. It is from the Emperor Julian, and is an extract from one of his works written in the fourth century. Emperor Julian was for six years stationed in Gaul and his headquarters were in Paris. He writes as follows:

I was formerly in winter quarters at my dear Lutetia, for that is what the Gauls call the town of the Parisii. It is an island of no great size, situated in the river, which surrounds it on every side. Bridges built on piles lead to it on both sides. The river seldom falls or rises, but is generally the same winter and summer.

Of course, I do not present that as a scientific argument, but it simply shows what he said at that time. He was for six years in Gaul, and he says that the river seldom falls or rises, but is the same summer and winter.

From a paper which I saw last week I cut this out:

M. Velain, professor of physical geography at the Sorbonne, has drawn up a report on the causes of the French floods, which he attributes, in the first place, to exceptional rainfall during the last six months, and, secondly, to the wholesale destruction of forests. In this respect Mr. Velain voices the unanimous opinion of French scientists.

I will omit some of the rest.

In other words, the forests until recently absorbed the rainfall and diverted the greater part of it into the soil, whence it percolated gradually into the great natural subterranean sheets of water. Most of the forests have now disappeared. Their destruction is thus, fatally, a national calamity, the terrible consequences of which have just been demonstrated by the present floods.

In regard to future legislation to preserve the French forests, it is pointed out by several large proprietors of timber land that the present excessive taxation on forests has brought about a wholesale transformation of wooded regions into pastures or fields where sugar, grain, wheat, and vegetables are raised. The landowners thus lay the blame on the Government for imposing almost prohibitive taxation upon forests.

That question of forest taxation is a very important matter.

Moreover, the general council of the department of the Marne, in its special session on January 31, unanimously passed a resolution declaring that the cutting down of the forests was the fundamental cause of the present floods, and calling upon parliament to enact, as a matter of supreme urgency, laws that will diminish taxes on forests, and that land replanted with trees shall be totally exempt from taxation, etc.

Mr. CURRIER. Professor, that is like the paper I have here, is it not?

Mr. SWAIN. It is the same thing.

Mr. CURRIER. I wish you would put the whole of it in the record.

Mr. SWAIN. I should be glad to have the whole article put in.

(The above-mentioned paper is, in full, as follows:)

THE FRENCH FLOODS.

M. Velain, professor of physical geography at the Sorbonne, has drawn up a report on the causes of the French floods, which he attributes, in the first place, to exceptional rainfall during the last six months, and, secondly, to the wholesale destruction of forests. In this respect M. Velain voices the unanimous opinion of French scientists.

Professor Velain explained to your correspondent that the three most important affluents of the Seine above Paris are the Yonne, the Upper Seine, and the Marne. These three rivers flow through soil of identical geological conditions. They take their respective sources in cretaceous formations in regions of hard, impermeable clay, and afterward flow through zones of softer millstone clay, which becomes quickly saturated.

During the last thirty years the forests have been cut down to the most alarming extent on the plateaus where these three affluents of the Seine arise. The pastures and cultivated soil, which have replaced the forests, no longer retain the rainfall, which is now sluiced off, as if from the roof of a house, directly into the rivers. This water is prevented from infiltration by the hard, impermeable clay. It then flows into the regions of partially impermeable millstone clay, readily saturated. Here the water, after a few weeks of rain, when the millstone clay has become saturated, increases so rapidly that, instead of filtering down into the large natural underground reservoirs, it rushes along in the river beds. In this way the plateaus of Brié and Langrèe, now devoid of trees, launch their total rainfall in a sort of mill race toward Paris.

In other words, the forests until recently absorbed the rainfall and diverted the greater part of it into the soil, whence it percolated gradually into the great natural subterranean sheets of water. Most of the forests have now disappeared. Their destruction is thus, fatally, a national calamity, the terrible consequences of which have just been demonstrated by the present floods.

In regard to future legislation to preserve the French forests, it is pointed out by several large proprietors of timber land that the present excessive taxation on forests has brought about a wholesale transformation of wooded regions into pastures or fields where sugar, grain, wheat, and vegetables are raised. The landowners thus lay the blame on the government for imposing almost prohibitive taxation upon forests. Moreover, the general council of the department of the Marne in its special session on January 31 unanimously passed a resolution declaring that the cutting down of the forests was the fundamental cause of the present floods and calling upon parliament to enact, as a matter of

supreme urgency, laws that will diminish taxes on forests, and that land replanted with trees shall be totally exempt from taxation until the first cutting takes place, which shall be done only in accordance with the forest laws established during the reign of Louis XIV, and which provide scientifically for a gradual increase of trees.

The parliamentary group for the protection of forests met yesterday under the presidency of M. Pierre Baudin and passed resolutions proposing a new fiscal estimation of forests, and urging that the bill for the protection of forests, with several important amendments to favor and encourage tree growing, be forthwith submitted to the chamber of deputies and the senate.

Mr. SWAIN. It is argued by some that there is yet no serious effect. A good many of us think the effects are serious; and if you will go into the mountains you will see them. But we do believe that they will be much more serious in the future. Ours is a very young country. We are only one hundred years old. One hundred years ago this was really a virgin country. In Europe they have a thousand or two thousand years to look back upon. We believe in calling in the doctor before the patient is dead. We believe in preventive medicine. We believe, all through New England, that the forests should be protected by legislation similar to that which has been found necessary in European countries.

Whether or not we have statistical information sufficient to prove our case is a minor matter. I think we have not sufficient to prove it; but we soon shall have, if the destruction which is now going on is continued. And, gentlemen, when we do get it—when there do come floods like the flood in Paris—when Pittsburg and Cincinnati and other cities are devastated, perhaps, as they never have been before (because we are always likely to have a greater flood than we have ever had before) the public mind will always be imbued with the idea that it is due to the destruction of the forests. You can not get that out of their minds, because they look at the matter from the common-sense view that I have suggested. They know that the forests retard the accumulating of the snows, and hold back water; and they therefore believe that they have an effect on floods. They probably exaggerate that effect, thinking perhaps that the maximum floods are always less.

But they have that idea, and in the main it is correct; and they will be inclined to place the responsibility upon you gentlemen, who now have the opportunity to do something, to take a step in imitation of what has been done abroad.

It happens that the only legal justification for your action is navigation. I have shown you that practically all the authorities are agreed as to the beneficial effect on navigation of the forests on the steep slopes which are not suited for crops. But there are side effects, by-products, which are of great importance. Of course the preservation of timber is very important. We all know how near a timber famine we are coming. The question of water power is very important and will become more and more important in the future, and by every small amount that the regimen of the flow of our streams is made more regular just so much is the water power benefited. This follows, even though you perhaps can not show it statistically by the measurement of the flow at the present time, although I believe the statistics are generally indicative of something.

Then the question of health and the question of beauty come in. The floods leave matter suspended on the banks which, when it putre-

fies, is deleterious to health, if the rivers carry sewage, as they frequently do. And the beauty of our mountains is something which ought to be preserved. Of course that is all outside of your legitimate power. Those things are by-products of your legal action. But assume once that you have a legal power to act, that there is an undisputed relation between erosion from the mountains and the navigation of the streams, and it seems to me that we should all be very glad to do something which brings with it so many beneficial by-products. [Applause.]

The CHAIRMAN. The Chair would like to remark that in hearings of this character it is not considered within the rules to have expressions of approval or disapproval from those in attendance.

Mr. LEVER. Before Professor Swain takes his seat I should like to ask one question, Mr. Chairman.

A great deal of importance, Professor Swain, is being attached to this report of Professor Moore's on the influence of forests on climate and on floods. Professor Moore himself admits a very recent change of heart on the proposition. I do not know that you care to answer this question; but I will ask it, and you can answer it or not as you please. Has Professor Moore had the scientific training that would warrant the public in giving to his scientific conclusions that importance which seems to be given to this document?

Mr. SWAIN. I do not think I could answer that, sir; but I have said already that I think the document does not affect our case a particle.

Mr. LEVER. Do you know whether or not Professor Moore is a graduate of any scientific school?

Mr. SWAIN. I do not know. I think not, though I am not sure.

Mr. LEE. Was Paris ever visited by as great a flood as that of this year?

Mr. SWAIN. Paris has been visited in the past by a number of floods. There is a work in three volumes giving full information regarding all the floods for three hundred years back. The greatest flood up to this time was in 1802, I believe. I have not seen the full data in regard to this one. In fact, I have never happened to see that work itself. But there is a list. I think, in Professor Moore's paper here, of inundations of the Seine, quoted from M. Belgrand. But it is entirely inconclusive. You can not draw any conclusion whatever from it.

Mr. LAMB. I want to ask one question: Have you ever had occasion to study the effects of the erosion along the banks of the James River, from its source down to Richmond?

Mr. SWAIN. I have been all along the James River, sir; but it was a number of years ago. I have not seen it in late years, since the erosion has been most rapid. I presume Professor Glenn would know more about that than I do.

Mr. LAMB. I hope we can hear something about that. I will remark just here that if you had observed the effects of it as I have, and you were a member of this committee, you could scarcely refrain from a little applause now and then yourself, Mr. Chairman.

Mr. SWAIN. Mr. Chairman, may I quote one sentence from Mr. Chittenden's paper? Mr. Chittenden makes this argument: That all sediment carried into the Gulf of Mexico comes from the uplands; and "that if the banks of these streams were revetted from the Gulf

to Pittsburg, the Falls of St. Anthony, and the mouth of the Yellowstone, the quantity of sediment passing into the Gulf would not be diminished a particle."

The CHAIRMAN. Whom are you quoting from?

Mr. SWAIN. Colonel Chittenden. If that means anything, it means that the sediment which comes down into the Gulf of Mexico comes from the mountain slopes.

The CHAIRMAN. Have you ever traveled on the Mississippi River?

Mr. SWAIN. Yes, sir; but not very extensively. I have not been down the river.

The CHAIRMAN. You do not make that statement on your own authority, do you?

Mr. SWAIN. I do not make that statement on my own authority. I do not believe it is correct. I criticised it in the statement I made to you, which you have on file, sir.

The CHAIRMAN. It is true according to your observation, is it not, that the sediment in the Mississippi River which interferes with navigation on that stream is derived almost entirely from the banks of the river in its lower reaches?

Mr. SWAIN. Not entirely; no, sir. It is a complicated question; but I think the greatest erosion from the surface of the ground is on the steep slopes, where the water flows down with the greatest rapidity. It is generally supposed that the eroding power of water varies as the sixth power of its velocity. That is to say, if you double the velocity of running water it is able to move a piece of material sixty-four times as large as it was before. It is on the steep slopes that the water carries the material down. That material gets into the river and is carried by the various floods farther on; the bars are moved and changed by each flood; the banks cave, and the sediment is added to as it goes down; and there is a steady march of eroded matter all the way down the river.

The CHAIRMAN. Do you yourself believe that the sand bars in the Mississippi River which interfere with navigation are due in any measurable degree to the sediment that comes down from the steep slopes of that watershed?

Mr. SWAIN. I do—partly to that and partly to other things. You can not distinguish where they come from.

The CHAIRMAN. Is it not true that whenever a bank begins to cave, a sand bar will be laid up only a few hundred yards away?

Mr. SWAIN. Yes; sir.

The CHAIRMAN. Does not that lead to the conclusion, then, that most of the sediment which results from the caving in of that bank is deposited within a short distance?

Mr. SWAIN. Most of the sediment which results from the caving in of that bank may be deposited in a short distance, and then by the next flood it may be moved farther downstream; and so it is with the caving of every bank, from the headwaters down.

The CHAIRMAN. I am asking these questions because I was one of the party which went down the Mississippi River last fall from St. Louis to New Orleans, at a time when the river was at its lowest stage, and therefore, presumably, it was eating into the bank in a less degree than it would at a higher stage. And yet our boat was hardly ever out of sight of a caving bank. Tons upon tons of earth were constantly falling into the river, and it seemed to those of us

who were on that boat, who commented upon the matter, that the amount of sediment which came down twelve hundred or fourteen hundred or two thousand miles must be negligible as compared to the immense amount of dirt that was being pulled into the stream along the reaches where we were traveling.

Mr. SWAIN. Of course, what is visible to the eye is what makes an impression upon you in such a case. You see a caving bank where you are. You do not see the sediment which has come down from points farther back and formed the bars. That is one of the mistakes in Colonel Chittenden's paper. I do not agree with that, sir. I simply illustrate it to show what he says.

The CHAIRMAN. Is it your judgment that in the White Mountains most of the sediment comes from the steep slopes, or from the lower portions?

Mr. CURRIER. May I answer that?

Mr. SWAIN. Yes.

Mr. CURRIER. I want to say this: The great bar that has formed in Long Island Sound at the mouth of the Connecticut, and which very seriously interferes with navigation, is said to be composed almost wholly of granitic sand, which must necessarily come from the headwaters of the stream, and can come from nowhere else.

The CHAIRMAN. How long has that bar been there?

Mr. CURRIER. That bar has been forming for quite a good many years, but in the last twenty years it has become a serious menace to navigation.

The CHAIRMAN. Do you know whether it was a serious obstruction to navigation a hundred years ago?

Mr. CURRIER. No; I think not.

Mr. McLAUGHLIN. At what point is that?

Mr. CURRIER. At the mouth of the Connecticut, in Long Island Sound. That bar has been forming since the mountains in New Hampshire have been denuded of their forests, and it is composed of a sand that can only come from the headwaters of the river, as I understand it. I think at some time testimony has been given before this very committee in regard to that bar.

Mr. SULLOWAY. It could not come from anywhere else, could it?

Mr. CURRIER. There is no such sand in the lower reaches of the river.

The CHAIRMAN. Is anything else found in that bar except this granitic sand?

Mr. CURRIER. Oh, necessarily, there is something else. But I am told (and there has been testimony to this effect, I think, before this committee) that in large part it is composed of sand coming from granite; and in order to get that you will have to go back to the denuded mountain sides of New Hampshire.

The CHAIRMAN. I should like to ask Mr. Swain one more question, if you have finished.

I believe you stated, Mr. Swain, that it was conceded that forestation would not control the great floods?

Mr. SWAIN. I said that it may not; that the floods from a forested district may be as great as the floods from that district if it were deforested.

The CHAIRMAN. If that is conceded, does it not give away a large part of your case?

Mr. SWAIN. Not a particle, sir—not a particle; because it does not affect the question of erosion.

The CHAIRMAN. You base your contention chiefly on the question of erosion, do you?

Mr. SWAIN. On that and on the general beneficial effect of forests on floods—not the maximum, necessarily, but the general effect; the general diminution of floods.

Mr. PLUMLEY. Mr. Chairman, I want to ask leave to ask some questions for the first time since I have been on the committee.

The CHAIRMAN. We shall be very glad to have you do so.

Mr. PLUMLEY. It is the first time anything has happened that I know anything about.

Professor, is not the commercial value of a river largely dependent upon the constancy of the flow of the water in it?

Mr. SWAIN. Very largely; yes, sir.

Mr. PLUMLEY. If there is a high flow of water in the spring flow or in the fall flow, or even in the June or normal flow, but a very low flow of water in August and September and October, how does that affect the commercial value of the stream? I mean, now, its value for water power?

Mr. SWAIN. For water power?

Mr. PLUMLEY. Yes. I am now speaking in regard to water power. That is a by-product, I know.

Mr. SWAIN. Of course the available water power that can be generated at any site throughout the year depends upon the smallest amount that you get in any one day in that year.

Mr. PLUMLEY. So the measure of its value is its minimum flow?

Mr. SWAIN. Its minimum flow.

Mr. PLUMLEY. The minimum horsepower that it can produce?

Mr. SWAIN. The minimum horsepower that it can produce. Of course it depends somewhat on the industry. Some industries might be able to go over a few weeks of low water and simply cut down their product. Others have to be running at the same rate all the time. For those the minimum flow is absolutely the crucial flow.

Mr. PLUMLEY. And in order to provide for the full tide of power they have to have supplementary power in the way of engines and boilers, do they not?

Mr. SWAIN. Exactly; yes.

Mr. PLUMLEY. How would it be as to the commercial value from the standpoint of navigation? Would it be measured by its highest flow, by its normal flow, or by the extent to which it would bear vessels upon it in its lowest condition?

Mr. SWAIN. More by its lowest stage than any other stage, I think. Of course, the lowest flow might occur for only a short time, a few days at a time.

Mr. PLUMLEY. Suppose it becomes a constant factor of two or three months' duration, practically every year?

Mr. SWAIN. Then it is the lowest flow that governs, practically speaking.

Mr. PLUMLEY. What is the effect of the forest, with a deep-leaf mold that has been staying there for years and years, upon the gradual outflow of the water into the streams, not only in the head-

waters of the principal river, but in the headwaters of every little stream that flows in—every affluent?

Mr. SWAIN. It stores up the water and gives it out gradually in the form of springs, and keeps up the low water. That is the general view, and it is my view.

Mr. PLUMLEY. Is it not the view which is held by every practical man who has looked upon the flow of water in our streams for fifty years, so far as you know?

Mr. SWAIN. So far as I know, it is.

Mr. PLUMLEY. That is all.

The CHAIRMAN. Are there any further questions?

Mr. COCKS. I want to ask the Professor if he thinks any sediment reaches the Gulf of Mexico from Montana?

Mr. SWAIN. I believe some does—yes, sir; a very considerable amount.

Mr. PLUMLEY. There is one other question that I should like to ask. I wish to ask you if the sedimentary matter which is in our streams like the Merrimac, the Connecticut, and other rivers of size, as well as the smaller streams, comes from the breaking down of the banks of the streams or from that which flows in from the surface?

Mr. SWAIN. In the streams that I know about, in New England, it comes from the surface. It does not come from the breaking down of the banks.

Mr. PLUMLEY. Do not our waters run pretty nearly right on a level, so that the eye catches them at a distance, instead of being down in a deep hole, like the Mississippi River?

Mr. SWAIN. Yes; the banks are not caving banks like those of the Mississippi River. They are tolerably resistant to the flow of water.

Mr. PLUMLEY. Can one who has become perfectly familiar with the Mississippi and the Missouri have an adequate appreciation of the nature and the resisting power of the banks of our New England rivers?

Mr. SWAIN. Oh, I think so. I think Mr. Scott is perfectly able to appreciate them if he will go and see them.

Mr. PLUMLEY. Yes; but if he is to draw his conclusions from his knowledge of the Missouri and of the Mississippi, would he have any conception of the resisting power and quality of our rocky, rock-bound streams?

Mr. SWAIN. No; the cases are very different.

The CHAIRMAN. Let me go further, Judge, and inquire how much conception of the caving qualities of the Mississippi River banks would be had by a man whose acquaintance had been limited to the rock-bound banks of the New England streams?

Mr. PLUMLEY. I knew nothing about it until I went there with you, sir, and saw it. I know it now.

The CHAIRMAN. And you quite agree with me, do you not?

Mr. PLUMLEY. I quite agree with you that it is an awful waste of good land and a terrible distribution between States.

The CHAIRMAN. And you quite agree also, do you not, that the great bulk of the sand bars in the Mississippi must be made up from the caving of the banks very close to those bars?

Mr. PLUMLEY. I expect that is where the larger part of the sediment falls. The heavy part of it falls in the eddies, right near the place where it caves.

The CHAIRMAN. Undoubtedly, undoubtedly. Nobody can travel over that stream without reaching that conclusion.

Mr. SWAIN. That would not be true, Mr. Scott, would it, in regard to the sediment in the Ohio and Monongahela and Allegheny rivers? That sediment must come from points above.

The CHAIRMAN. I am not familiar with the banks of those streams. I was not referring to them; I was discussing only the Mississippi. I wondered whether, after your attention had been called to the matter by Judge Plumley, you might not wish to modify your statement with regard to the Mississippi, having, perhaps, unconsciously conceived the notion that its banks were practically of the same character as the banks of the Merrimac or the Connecticut.

Mr. SWAIN. No, sir; I have not made any statement at all that I wish to retract; and I am somewhat familiar with the banks of the Mississippi, as I have seen them a number of times. I did not quote Mr. Chittenden's sentence there as my own, but I quoted it as his, showing that he believes (although he is considered an opponent of our scheme) that the sediment comes from the upper slopes. I believe that a large quantity of it does. There is a steady march of sediment all the way down the stream. It begins at the uppermost source and continues all the way down to the mouth.

The CHAIRMAN. Do you desire to go on record as stating that in your judgment the sand banks in the Mississippi River below Cairo, we will say, are due more to sediment brought down from the mountainous stretches of the stream than they are to deposits from the adjacent banks?

Mr. SWAIN. I could not attempt to make any quantitative division.

The CHAIRMAN. As a matter of fact, you would not make that statement, would you?

Mr. SWAIN. I certainly could not make it. I would not attempt to make any quantitative statement.

Mr. McLAUGHLIN. Mr. Chairman, you may remember that some of the treatises on the improvement of the Mississippi River spoke of the millions of square yards of dredging that had to be done for the removal of sediment and silt, and that if the Missouri River were improved the amount to be removed from the Mississippi would be materially reduced.

The CHAIRMAN. Oh, there is no question about that. The Missouri for nearly a thousand miles flows through practically the same character of soil that the Mississippi does. Its very name (which, being interpreted, means "the Big Muddy") indicates that it carries an immense amount of silt. There is no question about that.

Mr. SWAIN. These Atlantic streams are very different. The New England and the southern Atlantic streams are very different.

Mr. LEVER. The condition of the soil is different?

Mr. SWAIN. The condition of the soil is different; the conditions are entirely different. The erosion there takes place very largely on the upper slopes and is carried down into the streams, and does not come from caving banks as it does in the Mississippi.

Mr. COCKS. Do you not think a great deal of the sediment comes from the lower part, the secondary heights of the mountains?

Mr. SWAIN. It depends on the slopes, and on the velocity of the water. Wherever the velocity of water is sufficient and the soil is of

such character as to be carried away, in particles small enough to be carried away, the water will carry it away.

Mr. COCKS. Such a large percentage of the water enters those streams below the steep slopes that it would seem that a large portion of it must carry a lot of sediment, even though the ability of the water to carry sediment is reduced.

Mr. SWAIN. Undoubtedly some sediment comes in from below the steep slopes. But the point I have just spoken of—the increased transporting power of water dependent on its velocity—is a very important matter. The erosion is greatest on the steep slopes, and it increases very rapidly as the velocity of the water increases.

The CHAIRMAN. To what extent would the preservation of the forests on the steep slopes be profitable if the secondary slopes (what might be called the mesa lands) were deforested and converted into farms?

Mr. SWAIN. I think this whole question is a question to be considered with reference to each particular case. It is a question of slope; it is not a question of elevation above the sea. It does not make any difference whether the slope, which is steep and is being eroded, is toward the base of a mountain or up high on the mountain. It depends on the quantity of water and on the slope.

The CHAIRMAN. To give you a little clearer idea of the question I had in mind, let me call your attention to the conditions that exist in the southern Appalachians, with which you are familiar. I presume you will agree that at the present time the erosion is mostly from the plowed fields, which are on the lower slopes of the mountains?

Mr. SWAIN. I have not been there in some years; but if the plowed fields are on the lower slopes of the mountains, if those slopes are steep enough, and especially if the plowing is not done properly—if the furrow is up and down instead of along the contours—there is bound to be a great deal of erosion, of course.

The CHAIRMAN. Up to the present time the lumbering operations in the southern Appalachians have not resulted in materially interfering with the forest covering. Gentlemen from North Carolina are here, and can correct me if I am mistaken about that. Many of the lower slopes, however, have been entirely denuded, and are used for farming purposes. It would seem to me that nearly every observer would be of the opinion that most of the erosion, in fact, practically all of it, is from those farmed slopes. What I desired to inquire was whether you thought any good could be accomplished in that section of the country by holding things in statu quo, or whether it would be necessary to reforest the slopes that are now used for farming purposes?

Mr. SWAIN. I think it would be very desirable to reforest any slopes that are being badly eroded, whether they are used for farming purposes or not. If they are badly eroded, they will soon wash away and not be useful for any purpose.

Mr. WEEKS. Mr. Chairman, in December, 1908, Mr. C. C. Goodrich, of Connecticut, the general manager of the New York and Hartford General Transportation Company, testified before this committee and referred to the deposits at the mouth of the Connecticut River. I should like to insert in this hearing at the proper

point what Mr. Goodrich said about that matter at that time. It is in the hearings, but may be overlooked.

The CHAIRMAN. Very well.

(The statement above referred to is as follows:)

STATEMENT OF MR. C. C. GOODRICH, OF CONNECTICUT, GENERAL MANAGER OF THE NEW YORK AND HARTFORD GENERAL TRANSPORTATION COMPANY.

Mr. GOODRICH. Mr. Chairman and gentlemen of the committee, I have been requested by Governor Woodruff to appear at this hearing. I do not know that the governor expected me to say anything, because I am not a speaker; I am not used to appearing before a committee, and yet the chairman this morning asked for information on certain points that it did seem to me, perhaps, I could be of use to him in. First, as to the flow of the Connecticut River, as observed, and as to the building of the bars and the final disposition of the sand as it reaches the sea. I have been for forty years engaged in marine commerce, at the present time handling more than 40 vessels of from 500 to 5,000 tons register. I have observed in all these years, going back even further than my service as the manager or vice-president, and I remember the time when our river, forty years ago, received its high-water season and continued it away along until the middle of June, when the common inquiry was, "How much snow is there left in the forests in the White Mountains in New Hampshire and in Vermont?" We could depend in those years upon operating without difficulty from low water until about the 15th of June. In those days the Government had not undertaken the care of its rivers and its waterways as within the last twenty years. The result was that those who were using the rivers for their commerce were obliged to have their own dredges for service in summer, their own lighting system for the various rivers, and their own range lights to guide across the various bars which are forming between Hartford, Conn., and Long Island Sound. In that service we could start our dredges about the 10th of May, in which time the flow got so that we could reach the bar in about 20 feet, and about the 1st of July we had the courses cleared out at an expense of about \$58,000, and the rest of the season we could go on with our commerce.

In the last twenty years, and right down to the present time, in an aggravated way, the length of high-water flow in spring has been exceedingly shortened. Starting with March, freshet after freshet comes, with an immense waste of water, freshets ranging from 15 to 20 feet follow close upon one another, so that we lose the use of the water, and by the 20th of May, instead of the 15th of June, we arrive at a point where a full loaded passenger steamer of 1,500 tons must wait, must stop, or else instead of dredging in accordance with the present channel of 150 feet wide, with 9 feet at low water in summer, we must leave one bar and immediately go to another, where we have only a 25-foot channel, just enough to drop the keel into it, and then make another 10 miles, and still another 10 miles, and then put in another 50 or 60 feet wide at the bottom of the slope, and gradually in that way we can keep the daily line of passenger steamers that operate in that river in operation by having every great steamer and having the government engineers immediately attack another bar and keep going. We have been able to navigate very successfully there, and in that time we have been able to dredge through those bars, only half the width that the government project calls for.

If we continued and carried out and spent the rest of the appropriation, amounting in those days to about \$18,000 for two years, or about \$20,000, out of which the Government received its proportion for the proportionate expense of the engineering department in that district, we found we were throwing away the money, that we could get through with a 70-foot channel, and that we have done right down to the present year for the last ten years, and I presume we may continue to get along in that way for a good while to come. In speaking of the moving of this sand, which I would like to take up now, for, I think, without having statistics that the chairman asked for, I have forty years of practical experience, and I know that which is coming and that which has come. I know how the sand has come through the forest down there, and how it moves; that the sand is composed of a clean, white grit, as sharp as diamonds; that it is heavier than the alluvial soil. At every point from Hartford to the Sound, at every wide bank, this sand deposits, and that makes the bar, say, from 300 to 1,600 feet across, so in the 3 miles we may have from

1 to 3 miles of dredging in each year. As we dredge those bars, that sand, under the direction of the officers of the Government, is deposited in the only place where it can be put, as far out of the channel as we can put it. When the river carries down silt from the mountain it brings a deposit, and that deposit is dropped below this bar, and in the course of the next year it brings up at the next place, and in the course of a number of years it reaches the mouth of the Connecticut River. At that point it is building a shoal straight off to sea on the east side of the mouth of the river, being $1\frac{1}{2}$ miles shoaling water, to as shoal as 3 feet on the crest of the bar, and where the buoy guards the outer edge you immediately drop off to 120 feet. I am now looking to south. Looking to the east, that bar extends 5 miles to the eastward. The extensions are going on at the outskirts.

Looking soundward, over between the jetties at the mouth of the river, we have about 3 miles out the long sand shoals, which takes that portion and carries it to the west. That is 6 miles long, and there is a passage between that and the main shore. It lies pretty nearly in mid sound. That drops off into water from 8 to 12 feet, but 150 feet abreast of the light-vessel that is placed there to guard it, called "Cornfield light shoal vessel." It might be thought that the constant action in washing this sand off to sea must eventually blockade the mouth of the river. I noticed that the chairman spoke this morning of the Columbia River. I know that the Connecticut River, when you have extended this shoal off $1\frac{1}{2}$ miles from shore and have practically made a dam a mile and a half into the Sound, you have so confined the easterly and westerly flows of those tides past the Connecticut River, that from that day forward the rapidity and force of the current past the eastern buoy and the western spar on the Cornfield Shoal would have such great rapidity that at least $2\frac{1}{2}$ feet in three years on each tide of water is a mass of moving smooth sand, rolling over and over, and coming to the surface in perfect piles; so if the Connecticut River continued to discharge this great mass forever, there would be no use of farther building at this point toward the west. The extension would be to the east and west. I know that 20 miles to the westward and eastward, as it moves out of this rapid current, it never gets back toward the Connecticut River, but it does line the shore for all those miles with every southwest storm or southeast storm. It is driven on the shore until the shore now extends 20 miles to the westward and 30 to the eastward. There is no alluvial mud in it.

Mr. WEEKS. Now, Mr. Chairman, I should like to introduce Professor Glenn, of Vanderbilt University, to continue the testimony.

STATEMENT OF MR. L. C. GLENN, OF NASHVILLE, TENN., PROFESSOR OF GEOLOGY AT VANDERBILT UNIVERSITY.

Mr. GLENN. Mr. Chairman, I think, perhaps, just a few words preliminary to what I wish to say are in order here.

I have spent some four summers in active field work in the Southern Appalachian Mountains. Most of it has been on horseback, riding up and down the valleys; sometimes going afoot into places where horses could not go; sleeping at night in the mountain cabins wherever night overtook me; living with the people, inquiring of them the conditions, and finding out in the most direct and intimate way possible what the actual conditions down there are. Perhaps I had better say, too, that during those four summers I was not (as was suspected here some years ago at a similar hearing before a preceding committee) in the employ of any private party, any lumber company, any land company, or anybody that wanted to unload anything on the United States Government. I was employed by the North Carolina Geological Survey, the United States Forest Service, and the United States Geological Survey. My work there was primarily a study of erosion—a study of the conditions brought about by stripping the steep slopes of their forest covering.

I need not say to you, in view of the many things you have already heard, that this study of erosion is an exceedingly complex problem. There are a great many factors that enter into it. One of the very prominent factors entering into it is one that appealed to me particularly as a geologist, viz, the fact that of two soils, equally steep in slope, one might erode very rapidly while the other might scarcely erode at all. So that you can not lay down a hard and fast law and say that such and such a slope (naming it in angle) is an unsafe slope to clear.

The CHAIRMAN. But as a general proposition (if you will pardon me for an interruption right there), where did you find the most erosion going on? In the steep slopes or in the cut-over farmed lands?

Mr. GLENN. As a general proposition, I found that the most erosion went on in the cleared lands.

The CHAIRMAN. Where the slope was comparatively mild?

Mr. GLENN. Where it was either mild or steep. It is not primarily a question of being farmed lands, because the farmed lands down there include many lands that ought not to be so classed; that ought never to have been cleared. Because land is farmed you can not say that it is best for it to be so. Many of those lands are too steep, or are of a soil texture that is not suited to farming. Owing to its slope and the rainfall conditions down there, much of it now farmed is not suited to be cleared. The present practice there includes in fields slopes up to as high as 37 degrees, measured by clinometer. I have measured many fields on slopes of from 30 to 37 degrees. That is well up like that [indicating]. Those slopes are entirely too steep to be cleared under any circumstances. In the case of lower slopes perhaps 10 or 15 degrees would be a fairly safe estimate as to the upper limit of steepness for cleared lands.

That, too, will vary, as I have said with the particular type of soil. If the soil is a close-grained clayey soil, it will erode very much more rapidly than if it is a loose-grained, porous, gravelly, or stony soil. And of two soils—one a close-grained, clayey soil, without loose stones in it, and the other with loose stones in it—the stony one will stand safely on a steeper slope than the one without stones.

I merely throw out those as a few of the results gained in the study of the causes and conditions of erosion. It is a complex problem, and one that I could not attempt to enter into thoroughly at all in the few minutes that I have here.

The information gained led me to the conclusion that we are really dealing with and oftentimes are confusing two distinct problems. There is in the Southern Appalachians an agricultural problem, and there is a forestry problem. The agricultural problem is not to be solved by reforesting the low-slope lands, some of which the chairman of the committee saw in the South. The problem there is primarily one of better methods of agriculture; one of putting back into forest, perhaps, the steeper slopes, but keeping the gentler ones in better cultivation; a problem of hillside ditching, terracing, and so on, perhaps rotating crops differently and cultivating differently. There are a great many ways of improving agricultural practice that would aid in solving the erosion problem.

That is aside from my purpose here this morning; but I wish to call attention to it as a large and vital problem. Oftentimes the idea

prevails that we are to reforest everything. By no means. Much of that land is best tilled, if the slope is low enough. As time passes and population presses more and more upon subsistence our people must learn better methods of agriculture, and come, little by little, as the population increases, to know how to handle agriculturally slopes that they can not successfully handle to-day with present careless methods of agriculture.

The CHAIRMAN. The problem of overcoming erosion in that section of the country is, in your judgment, largely a problem of farming rather than of forestry?

Mr. GLENN. No, I should not say largely a question of farming. I should say it is perhaps 20 per cent a problem of farming and 80 per cent a problem of forestry. If you should divide the slopes there into those that are less than 15 per cent in angle, and so safely classed as agricultural lands, and those that are over 15 per cent in angle, and so too steep to be safely cleared under present conditions of farming, you would get about that proportion of area. There is a decidedly larger proportion of land there that is too steep to be included as agricultural land, under either existing methods or any methods that our people will adopt in any reasonably short time. We must take care of them and treat them as forest lands for decades to come. Ultimately, the methods of terracing and torrent regulation in use in Europe—in France and in northern Italy, on the southern slopes of the Alps, and elsewhere there—will come to prevail here. We can then add more and more to the agricultural area. But to carry out the suggestion of Professor Moore, quoted from at length by Professor Swain, that we ought now to clear up more of those southern Appalachians to appease the children's cry for bread, would be entirely disastrous under present methods of agriculture. It would simply invite disaster to do so, and such a plan could not have been advocated by anyone that really knew anything about conditions there to-day. The children are not crying for bread, and too much land is now cleared.

I should like further to call attention to the fact that what I have to say refers particularly to the steep slopes. It does not refer to the broad, undulating lands out in the middle and lower reaches of the great stream basins that have their heads in those mountains, but that flow off, it may be, several hundred or a thousand miles or more before they empty into the Mississippi, or the Gulf, or the Atlantic. Most of the destruction comes on these steep headwater slopes, and on the parts of the streams immediately adjacent to and just out from the mountains.

It is there that we have had the millions of dollars of loss that have characterized the floods in the southern Appalachians during the last eight or ten years.

It was not on the Tennessee River, for instance, away down in Alabama, or across west Tennessee, or near its mouth at Paducah, Ky., that the destruction was wrought. It was up at the very foot of the mountains, at Elizabethton, Tenn., and at many other points similarly situated, where the waters, rushing down from the steep slopes, debouched first on the low-grade plain and there caused the destruction that resulted in immense losses of property and in some cases of life. It was there that there occurred the gouging of the flood-plain into enormous holes into which you could drop an ordi-

nary-sized residence, say, and where, in other situations, instead of gouging out holes, the flood covered over the flood plain several feet thick with sand or with stones up to the size, say, of a man's head, or even the size of a nail keg.

That being the position of the region that suffered most, I think there is no necessary conflict in the statement that while the floods may be very much more disastrous there in recent years, they may not be much more disastrous down near the mouths of those great river systems. A great river system is made up of a great many smaller units—the various headwater streams. An unusually high flood is always the result of exceptional conditions. Exceptional conditions are not so apt to prevail over an enormous area such as the basin of a great river system as they are to prevail over a small area such as the basin of one of its tributaries. A small stream-unit may have an enormous rainfall on it, when other adjacent stream-units leading into the same main stream may not have those exceptional conditions.

So I have frequently found that some one of those constituent basins had an unprecedented flood, while some adjacent one did not; and the master stream into which they both drained would reflect, not the extreme, but the mean. The tendency of the master stream is always to the mean of conditions, not to the extreme. So it is entirely consistent to say that we may have extremely high and very disastrous floods on several of the various head-water tributaries, and not have unprecedented floods on the main streams below, and flood conditions may become much worse on these headwater tributaries without becoming proportionately worse on the middle and lower parts of the master stream.

That has been a source of confusion in discussing this problem, and I think some of Professor Moore's misstatements (for such, I think, they really are) come from confusing those two things. He is often-times arguing as to conditions well down the stream and trying to fit his argument to the statements made by others with reference to headwater conditions. On the Ohio River it was at Pittsburg that in March, 1907, the enormous destruction of \$10,000,000 worth of property was wrought in a couple of days—not down at Louisville, Ky., nor at Paducah, nor at Cairo, nor down on the Mississippi at Memphis. It was, in other words, well up toward the headwaters. It is always there that the maximum destruction occurs and not farther down on middle and lower reaches. So that it is the headwaters that are the locus of the chief destruction so far as erosion and flood damages go.

The CHAIRMAN. That would not obtain as to the Mississippi, would it?

Mr. GLENN. That would obtain to a large extent concerning the Mississippi as well. It is made up of dozens of streams coming from the east and the west. The rise on these tributaries is always more rapid and violent than on the main Mississippi; there it is always gentle and long continued. Reforesting the headwaters can diminish that somewhat, but can not entirely control it. It is not hoped to reforest the headwaters and thereby entirely obviate the floods of an entire basin. Reforestation is not a panacea for all of the existing ills, but it does strike directly at the very worst feature of them and strikes at them in the way that is best fitted to cope with and amelio-

rate the conditions. It is the one remedy for steep slopes, and without it we are practically helpless. What would you do for such slopes if you reject reforestation?

A forested area can take up a certain absolute amount of water and hold it. Just in proportion as you increase the forested areas you withdraw an increased amount of water from the flood discharge that goes to bring about destruction, and the larger the forested area that can be given the larger the amount of rainfall withheld and the better the results. But no amount of forested area that it would be practicable to provide would entirely obviate floods. Nobody claims that. There were floods in this country before Columbus came here; there will always be floods; but the floods then were not as destructive and not as frequent as the floods of to-day. And that leads me to this deliberate statement, born of the work in the southern Appalachians through four years: Deforestation does increase both the height and the frequency of the floods. There can be no question at all as to the result of four seasons of field observations in those mountains concerning the truthfulness of that statement. Professor Moore makes directly the opposite statement. His conclusions could not have been reached by one who knew the actual facts. They are erroneous. To prove the soundness of my opinion will, I think, take only a few moments.

Deforestation undoubtedly increases erosion on steep slopes. I have not yet seen that proposition denied by anyone—that a steep slope when deforested will erode more rapidly than the same slope in forests. Even Professor Moore treats erosion very gingerly, and seems to have changed his mind as to it between submitting his report to this committee and having it printed. He leaves out of the printed report the conclusion that erosion may be a good thing for the country.

The deforested and eroded steep slope will carry the water that falls on it off down into the stream more rapidly than the forested slope would have carried it. The water, then, accumulating in the stream more rapidly than before, must be carried away by the stream more rapidly than before, else the flood will be higher than before. But along with the water that goes down from an eroded slope there goes an enormous amount of sand and gravel and other materials, and those materials fill up the stream channel. If you go into a forested area down there, you will find deep stream channels with large cross-sections, capable of caring for a large volume of water. Go into one of those eroded areas and you will find those deep stream channels absent, and in their place stream channels that have been filled full of sand. You have a larger volume of water, then, carried down to a channel with perhaps a fourth or even a tenth of the normal cross-section as found in the forested channel—a channel which, consequently, is exceedingly inefficient and can carry away but very little flood water compared with the normal deep channel. You have, therefore, a greater volume of water carried to an agent that is less able to carry it away. It is bound to accumulate there, and it is bound sooner to get out over the lands or produce a flood; and a rain that, under a forested condition, would not overtop the banks, but would be rapidly carried away by the deep and efficient stream channel, will, when the channel is full of sand, cause a flood and spread destruction far and wide.

Many a stream to-day in forested areas there does not flood the adjacent bottom lands, while a neighboring stream, with approximately the same rainfall and under the same conditions, except that it has been deforested and is largely cultivated, does, with every little rain, get out of its banks and flood the lands on either side. So true is this that in many cases the people have practically abandoned those lands. Over great areas they are practically worthless for agricultural purposes.

I remember that on my father's farm, when I was a small boy, the most valuable lands we had (and this was commonly true over large areas in the South) were the bottom lands. The stream was perhaps a rod wide and the banks were 8 or 10 feet high. The water level was 6 or 8 feet down below the general bottom land, or flood-plain level. To-day if you go to that farm you will find the stream channel filled with sand. The lands that were formerly worth a hundred dollars an acre are practically worthless; many of them are growing up in willows and bushes, because now every little bit of rain that comes floods the whole land, drowns out any crops that may be planted, and spreads sand over the land so that not even grass will grow on it. You can not turn it into meadows; it is practically worthless; and it is due to this change—the erosion of the steep slopes, bringing in materials that fill up the channels and convert what were efficient means of rapidly draining away the flood waters into very sluggish, inefficient means of draining off these same flood waters. The flood waters accumulate, rise higher than formerly, spread over the lands oftener, and cause much greater destruction.

Mr. LEVER. Is that condition general, do you say?

Mr. GLENN. That condition is a very general one. It obtains over some thousands of square miles—and not in one section alone, but up and down the length and breadth of the Appalachian Mountains and the adjacent Piedmont Plateau.

The CHAIRMAN. What particular section do you refer to as having lived in?

Mr. GLENN. When I spoke of my boyhood home, it was in the Piedmont section of North Carolina, at the foot of the mountains, on the east, not far from Kings Mountain. That condition obtains in Alabama, across Georgia, across upper South Carolina, North Carolina, and across Virginia; and it also obtains within the mountain area and west of the mountain area, across Tennessee and up into Virginia. The filling of the stream channels that formerly were deep and were efficient avenues for the rapid discharge of flood waters has practically destroyed their efficiency for that purpose; and rains that formerly would not have caused a flood at all now do cause floods, and cause higher ones than formerly. So that Professor Moore's statement is directly opposed to the facts that obtain down there over thousands of square miles, and could not have been made by a man familiar with actual conditions in the field.

Mr. LEVER. Do you know anything about Professor Moore's scientific training?

Mr. GLENN. I do not, and would not be able to throw any light at all on the reasons for his conclusions. I may say this much in general: His conclusions are doubtless perfectly honest ones, but I believe they have been reached by considering imperfect data. He did not have the data that he should have had to draw those con-

clusions from. Had he spent even a few weeks in the southern Appalachians, examining actual conditions in the field, he could not have drawn the conclusions that he did. They are undoubtedly erroneous, as any man could at once see who had been in that region for any length of time—not even giving it special study, as I did, for four years.

Mr. COLE. Did you ever hear Professor Moore's competency as a witness on this proposition objected to prior to his adverse decision?

Mr. GLENN. I have never heard him spoken of in connection with it at all prior to this.

Mr. LEVER. He is a new Richmond in the field, is he not?

Mr. GLENN. That was my impression.

There is another feature connected with the matter of floods. Deforestation undoubtedly decreases the low-water discharge of the streams. If you measured the total annual discharge from a forested area, and then chopped off the trees from the entire area and again measured the total annual discharge, I do not know whether there would be much difference or not. That is not at all a vital question, to my mind. It might be that there would be considerable difference. I do not know. I am not really greatly concerned with it. But I do know this, as the result of my experience of four years down there:

In the forested area the discharge is regulated. Doubtless you have heard that time and time again; but I want to repeat it as a result of direct study of that particular point down there, that forests do regulate the flow of the streams that drain them, and that during floods the discharge from forested areas is not as great as it is from unforested areas. With a heavy rain the streams of a forested basin will rise slowly; they will stay high for several days, and will go down slowly. The streams of an unforested area will rise very rapidly, become raging torrents, and run down rapidly.

In that connection I should like to call your attention to a fundamental oversight in one of the conclusions that Professor Moore has reached. His statements are utterly inconsistent with each other. He says, finally:

Floods are not of greater frequency—

I feel perfectly confident that they are, but this is the point—

And longer duration than formerly.

Taking one of his other conclusions in connection with this one—that as to their not being higher—it is inconsistent that floods should be both higher and longer in duration from similar rainfall. In other words, the higher a flood is, the more rapidly it will run down. So that if the height of a flood is increased, it is because more water is delivered there at once; and that water goes off as a great tide, sweeps rapidly past, and as rapidly as it rose it falls again. An unforested area flood is one that passes rapidly. A forested area flood is one that passes slowly, because the water is fed in slowly to supply the flood and does not reach enormous heights. In proportion as you increase the height, you increase the slope of the front part of the flood wave that is going down the river slope, and consequently increase the velocity with which it goes. It rapidly runs itself out, in other words.

If you attack the problem along any line—and I have tried to work it out in as many ways as I in my ingenuity could suggest—the inevitable conclusion is that the higher the flood crest from the same amount of rainfall, the shorter lived it is going to be; the lower the flood, the longer lived it is going to be. I have not the time to go into half a dozen other points of approach to the same problem; but I can find no avenue of approach except one that reaches that conclusion. And I can not see how the last conclusion—that the floods are longer—can be sustained by any argument that could possibly be devised; certainly by no observation in the field.

Let us take next the question of stream filling. We must look on a stream just as you would on a railroad. A railroad with a certain equipment is able to carry a certain amount of freight. If you deliver to it more material than its capacity for moving, it is bound to become congested; it is bound to let freight accumulate because it can not possibly carry it away. A stream with a certain amount of water and a certain velocity can carry a certain quantity of sand and gravel. Nature, through long, long ages, fitted the cross sections of the streams, their slope, etc., to carry away efficiently the material furnished to them under natural conditions. As a result of that we find that the mountain streams, under natural, normal, forested conditions have cleared out deep rocky channels.

That photograph before the window there of the gorge of the Linville River, in the western part of North Carolina, shows a natural channel, with a stream flowing and scouring on a rock bottom, with rock sides. If man steps in and by deforestation and erosion furnishes a much greater quantity of sand to that stream, the time will come when, with the increasing quantity of sand, the stream is no longer able to carry it all away. The stream is then bound to let it accumulate there. You have really overloaded the stream. It can not handle the stuff you are giving to it any more than a railroad can always handle all of the stuff that you give to it. It accumulates along the stream upon chance obstructions, such as bowlders, behind logs, in bends, and anywhere that it can lodge. It accumulates more and more, until finally the rocks are entirely covered, and the stream no longer flows on the rocks, but flows within banks of sand and gravel, etc.

Alluding to the source of the sediment in the Mississippi, about which the chairman was asking a while ago, I will state that the material that you would find anywhere in the Mississippi flood plain is material that has come from many diverse sources—originally far back, much of it, in the mountains or the upper reaches of the waters. A given grain of sand has traveled a few miles with this flood and lodged, and then it has been carried down a few miles with the next one and lodged, and a few miles with the next one, and ultimately it works its way out to the Gulf. So that the immediate cutting of banks and building of bars a few hundred yards below is merely incidental—a step in the general progress of that material in that interrupted way from the headwaters down to the Gulf ultimately. Not all of it comes from the headwaters, it is true; because if you take the total area of the Mississippi drainage basin, the uplands all over it in cultivated fields are being eroded to a certain extent; they are furnishing sand and gravel and clay to the stream, so that it comes

from all parts of the basin; but the more active zone is the headwaters.

The CHAIRMAN. Is it not true that the headwaters of the Mississippi, including the headwaters of the Missouri, which is really the greater stream—is it not true that they are in soil of a character that does not easily erode?

Mr. GLENN. I am not personally familiar with the headwaters of the Missouri.

The CHAIRMAN. And is it not true also that these headwaters are in a region of very limited rainfall?

Mr. GLENN. Much of that as to rainfall is undoubtedly true in the case of the Missouri. I am not personally familiar with conditions there, but I do know, from various sources, that enormous volumes of sand comes down the Missouri. Whether they come from the headwaters or are picked up by the streams as they cross the plains I do not know, but I do know that in the southern Appalachians there is an enormous mantle of disintegrated rock material standing on very steep slopes in such a way that the moment you remove the forest cover it begins rolling down into the streams and working its way down, little by little, into the larger and larger channels.

In that connection I wish to call your attention particularly to the results of examining a number of the navigable streams that head up in those mountains. There were two basins especially that are contrasted—the Tennessee and the Coosa, Alabama—both heading in the southern Appalachians. In the Tennessee basin very much of the mountain headwater area is deforested. The sand and gravel that works down that stream has worked into the navigable portion, and is to-day accumulating there behind any chance obstruction wherever it can possibly find lodgment. It is building islands. There are a great many islands in the Tennessee, and those islands are growing—sometimes growing rapidly. Islands that a few years ago were just above low water are to-day, in some cases, cultivated in corn, they have built up so rapidly. The growth of an island of that kind is bound to displace the channel of the stream, and the steamboat channel that once ran in a certain course now curves around somewhere else. They find in the middle and lower parts of the river that at such a point they must be perpetually rearranging the lights by which the boats keep the channel and keep their bearings. We find that at such places the banks are caving and engulfing houses and orchards and lands as the result of the accumulation of material in the channel, deflecting it and causing undercutting of the banks. Where dikes are built for the sake of improvement, very soon immense quantities of sand and gravel lodge behind them and build them up, growing islands back of them, as it were. A natural bar that does not show above low water even we find increasing in the quantity of gravel on it, so that a channel dredged by army engineers this year across one of those bars must next year, perhaps, or within a short while, in certain cases, be redredged. It is not a permanent improvement, and under present conditions it never can be a permanent improvement. You are taking out small quantities, it is true, but the headwaters all around, over thousands of square miles, are furnishing to that stream ever-increasing quantities to quickly obliterate the little bit that you take out.

The dredgers at Knoxville and down at Chattanooga, Tenn., take out great quantities of sand and gravel for building purposes. They are perpetually dredging. A firm owning a little section consisting of a few acres dredges thousands of cubic yards of sand and gravel from it, but he never gets to the bottom of it. He never exhausts the supply. The river is perpetually rolling it along its bottom and filling the dredged spot up again, so that it is just as full to-day as it was ten years ago, before he took a yard out, and it will be just as full a hundred years hence. Indeed, it will be fuller a hundred years hence if present conditions continue, although he dredges constantly all the time.

What is the use of spending millions of dollars—and the Government has spent five, six, or seven millions on the Tennessee River already—in making improvements of that sort, many of which are bound to be as short lived as those are? There can be no permanent improvement, no permanent maintenance, of a navigable channel there under present conditions by such methods. It is an unending task; and not only unending, but a task that, as the years go by, becomes a more and more difficult one, because of the annual increase in the quantity of material that is being carried in there. I could give detailed instances covering changes that have gone on in this river, showing that there is a vast quantity of material lodging along the way and accumulating in the river. It is overloaded with the waste from the steep deforested mountain slopes.

Going to the Coosa River, on the other hand, its headwaters in north Georgia are largely forested. It is navigable up to the very foot of the mountains. You can almost throw a stone from the last landing on one of the headwaters of the Coosa River against the steeply rising mountain slope; certainly you could fire a rifle against it. Yet the river, even up there, is navigable, and has been for years. It needs some snags taken out, it is true, and improvements of that sort now and then, but there is not a great accumulation of sand and gravel there, because the mountain slopes up above are all forested land and do not furnish enormous quantities of sand and gravel.

I went down that river 165 miles from Rome, Ga., examining it, and found that there were no accumulations of sand and gravel in it. That was the very thing that I would have expected, because the mountain headwaters there are protected by forests. Just in proportion as the headwaters of that stream are denuded of their forest covering (most of them are entirely too steep to be agricultural lands), you will find sand and gravel accumulating in the stream, and you will find the people of Georgia and Alabama clamoring for larger and larger annual appropriations to clear out the stream and maintain the navigable conditions that they have down there to-day.

Coming around on the eastern side, I could give you illustrations of numerous other streams—the Chattahoochee, the Savannah, the Broad, the Catawba, the Yadkin, the Roanoke, and the James. They are all affected by the same conditions. There is an enormous quantity of sand and gravel being carried in all of these streams that flow down to the east—to the Atlantic. The Yadkin is typical. It is about halfway between the north and the south limits mentioned. The Yadkin channel is rapidly filling with sand. It is accumulating behind any chance obstruction. It has already shallowed the stream and has caused a smaller flood discharge than formerly to spread

over the bottoms and to produce floods. It has caused a widening of the shallowed cross section, too. With a given width of river and a given depth, if you halve the depth you must increase the width to obtain the same prism and allow the same discharge. The sand has halved, we will say, the depth in many places there; the banks are caving and cutting and the river is widening itself in the effort to maintain the same discharge prism that it formerly had in its deeper natural condition. This widening engulfs valuable farming lands.

That is a very simple process and an inevitable one. You can go along almost any of those rivers and find its operation wherever there is sand filling. You may come to some rocky, steep reach, where the velocity is temporarily greater, where the river has kept scoured out and is still flowing on rocks, and you do not find conditions indicating a widening at all. There are a great many factors of that kind at work there, showing to a geologist what the streams are doing. I will just mention one more; I do not care to take too much of your time.

It has been claimed that floods are not more frequent and not more destructive, not higher, to-day than formerly. Just on that point I should like to offer this bit of evidence that is peculiarly strong to a geologist: The flood plain on a river is the accumulated stream-borne material that through long ages has been laid down during floods. It is the alluvial material that you see in the Mississippi and every other flood-plain stream. If we take the upper reaches of the Holston River, we will say, to give a concrete example—that is the one that caused several million dollars' worth of loss a few years ago at and near the little town of Elizabethton, Tenn.—the river at that time gouged the flood plain into holes in places and scattered 3, 4, or 5 feet of poor white sand over some parts and scattered bowlders over other parts, entirely destroying the value of those lands for agricultural purposes, some of them for all time. If that had been a normal, habitual thing for that river to do, if it had been doing the same thing for ages and ages past, and this had not been a novelty, a strange, new, freakish thing for the stream to take upon itself to do, we should never have had agricultural lands there. The settlers that went in there and cleared those rich lands and tilled them for a hundred years would have found stony or sand-covered wastes and gouged holes there, just as we found when the flood of 1902 had spent itself. Before, however, that was not true. Those lands were rich, fine silt, admirable for the growth of corn and other crops, worth a hundred dollars or more an acre. They were the result of the accumulation of perhaps some thousands of years of normal river activity, and showed conclusively, simply by their very existence, that destructive action such as occurred in 1902 had not been characteristic of the river.

The CHAIRMAN. Does not the significance of that flood rather diminish in the face of the fact that in 1903 there was a similar flood in the Kansas River, which throughout its entire length flows through a flat prairie country? Prior to the flood the bottom lands were just of the character you have described—deep alluvial soil of the highest agricultural value. Yet in 1903 there came a flood which dug holes in the soil, as you have said, into which you could drop a house, which covered it over in some places from 5 to 15 feet deep with sand and wholly destroyed the value of the farm lands for the time being.

That flood could not be attributed to the deforestation of the headwaters of the Kansas River; and I may add that we have had three or four similar floods since that time.

Mr. GLENN. It is undoubtedly true that there are other factors than deforestation. In your case, for instance, there was probably the factor of increased cultivation, increased runways, ditches, and so on, to deliver water and exceptionally heavy rainfall. I do not know just what the determining cause was in that particular case.

The CHAIRMAN. I do not want to interrupt you, but this comes in so pat that I am sure you will be able to resume the thread of your argument: Is it not true that great floods arise from so many factors that it is hazardous to attribute them to any particular one? For instance, there is no navigable stream which has not a great many tributaries. If it happens that there is a general rainfall over the watershed of all of those tributaries you will have a great flood; but there might be a heavy rainfall on one of them at a time when there was no rainfall on the others, or at a time when the main stream was at a peculiarly low ebb, and there would be no flood. A thousand different factors may enter into the making of a flood. Is it not, therefore, rather hazardous to attribute a flood at any given time solely to one factor?

Mr. GLENN. Mr. Chairman, I do not pretend to attribute it solely to one factor at all. But this factor of denuded versus forest-covered slopes is the one of principal change; and I find contrasting the areas having one or the other of those two characteristics, that time and time again the denuded area suffers from the more frequent and the more violent and destructive floods. The conclusion is forced on me, when that happens not once but time and time again over scores of basins around the Southern Appalachians, that it must be due very largely to the difference in the forest-covered condition of the slopes. I can not escape from the conclusion that deforestation is the principal factor.

There is one little basin just north of Asheville, N. C., which is drained by a branch of the Ivy River. It is in a rolling, hilly region, rimmed around with higher, steeper mountains. Some twenty years ago the farmers found that the soil of that basin was peculiarly adapted to the cultivation of a particular type of tobacco that was then very profitable to grow. Within a few years they chopped down the trees over practically the entire basin, on the steep slopes and all, and put it into tobacco; and tobacco barns dotted every little hillside there. The stream that drained it had previously been a clear-flowing stream with deep holes along it—holes where the boys went in swimming and where all went fishing. The stream flowed regularly the year around. A mill down near the lower end of the basin had a steady source of power. Within a few years after that land had been cleared up and cultivated in tobacco the slopes eroded so that the stream channel was filled full of sand, the water flowed practically on top of the surface, the deep holes were gone, the fish were gone, the clear stream was replaced by a muddy, sluggish stream that during low-water stages carried very little water, the mill down near the mouth of the basin, which had always been grinding on half of the water (the spillway was arranged so that half of the discharge went to the wheel pit and the

other half flowed off downstream), had to change this arrangement and divert the entire discharge into the wheel pit; and then, still later, they had to shut down part of their machinery during certain seasons of the year, because of the decreased low-water flow that undoubtedly resulted from deforestation.

The CHAIRMAN. Is that section still cultivated in tobacco?

Mr. GLENN. That section is no longer cultivated in tobacco. They ran the price down, or for some reason the price dropped, until it became unprofitable, and the industry there was abandoned. The destroyed bottom lands, the filled-up stream, the vanished fish, the decreased flow, and the rotting-down tobacco barns are the mementoes of the experiment. It was very instructive from our standpoint, but disastrous from theirs.

The CHAIRMAN. Is it cultivated at all now?

Mr. GLENN. A good deal of it is still cultivated in other products. Some of it is growing up. Much of it is deeply scarred, much like some of the region you saw about Bakersville, Mr. Chairman.

The CHAIRMAN. Have you any idea how much the land is valued at?

Mr. GLENN. I do not know. I should say some ten or fifteen dollars an acre, as against perhaps thirty or forty dollars an acre for good agricultural lands.

The CHAIRMAN. Do you think that land is of the character which the Government would be warranted in buying in case it enters upon this policy?

Mr. GLENN. Some of that land; yes, much of it. I would not say to buy all of it. In fact, it is hard to pick any given area and say buy all of it. You must select certain areas. The higher, steeper slopes I should certainly advise including. You saw, Mr. Chairman, about the Balsam Gap, in North Carolina, some of our typical eroded lands. That land, I should say, should be bought. It is land that ought not to be put into cultivation at all. It is entirely too steep.

The CHAIRMAN. As a matter of fact, that land never can be put into cultivation again, can it?

Mr. GLENN. I think not, sir; not unless you can devise a means to cultivate steep-sided gullies and bare red-clay washes.

The CHAIRMAN. What will happen to it if the Government does not buy it?

Mr. GLENN. It will remain a waste for perhaps hundreds of years—simply red-sided, steep, sharp-bottomed, gorge-like gullies that will constantly get steeper and wider. Much of it is eroding so rapidly that nature itself, unaided, will not reproduce a forest cover. There are lands where nature, in the course of time, will gradually clothe over and heal up and obliterate the scars that man has made. But much of that land is going steadily from bad to worse. And if you had had time to see some lands just east of Marion, N. C., in the foothills of the Blue Ridge, you would have found enormous vertical-walled gulches or gorges, some of which would take in a house or two or three houses, 50 or 60 feet deep, perhaps, simply caving off in great masses, and trees (the largest of the forest growth) being engulfed in them and being swept away by them. That sort of erosion is prevalent over a considerable area there, and the individual farmer is unable to cope with it. It is entirely beyond him. Indeed, I think it would tax a well-organized forestry bureau to repair some of that

erosion. It is steadily invading the higher slopes. It usually starts down on the lower ones, and eats its way up the hillside or the mountain side, enlarging at it goes.

The CHAIRMAN. In all such cases would not the cost of recovery be prohibitive, even to the United States Government?

Mr. GLENN. Very likely the cost of recovery would be; but the remedy there would be to check the thing, and not let it invade other areas. Be warned by the destruction you see there, and prevent its spreading farther over other lands. In other words, reforest lands before it is too late. Devise whatever methods might suggest themselves to attempt the recovery of that land, or at least to check its erosion. It is unchecked to-day, and is already a serious evil.

The CHAIRMAN. Is it not true that, comparatively speaking, there is only a very small area of the Appalachians where farming has been attempted on slopes so steep that when the farming is abandoned nature will no longer cover the soil? For the most part, when the farms are abandoned does not the natural cover very rapidly come back?

Mr. GLENN. I should say that in the case of what abandoned lands there are (abandoned because of erosion on steep slopes), nature might take hold of perhaps a third of them. There are large areas that nature does not take hold of efficiently. It depends much on the soil type. Nature will probably take hold of any land that has been cultivated, however steep, on certain soil types, and reclothe them, but on other soil types nature is much less powerful and would not take hold. The soil type in Balsam Gap is one of the peculiarly difficult ones for nature to handle. There is another area of the same type east of Waynesville. You may have seen the same conditions duplicated east of Waynesville and if time permitted I could name a great many other areas where the same condition prevails.

Then there is still another type of ground there where over considerable areas, all along the Blue Ridge (which is usually steeper on its east face than any other part of the mountains), the underlying rock is a granite, and above it there is 1 or possibly a couple of feet of root mats and disintegrated granite soil particles. If the forest cover is removed from that, very soon that whole disintegrated sheet strips off and leaves you a perfectly bare granite surface. That granite surface is as bare as your hand, composed of hard granite; and it would take it, I do not know how many centuries, to disintegrate and reproduce the forest cover on itself. That kind of ground is peculiarly dangerous to tamper with in the way of deforestation; and it is found at the head of the streams that flow to the Atlantic, that in their upper reaches have those valuable water powers on them, that have filled up with materials swept down from the steep slopes, and that in their lower reaches become navigable up to the cities of Columbus or Macon or Savannah or Columbia or others that I might mention. So that the matter becomes a navigation problem for the lower reaches. It is a water-power problem for the mid-country. It is a farming and general conservation problem for the mountain areas themselves.

I do not know that there is anything further that I care to say, Mr. Chairman.

The CHAIRMAN. I should like to ask you just two or three questions, which I think you can answer briefly.

In your reference to the Tennessee River I understood you to say that the watershed was practically all denuded—that is, on that part of the Tennessee?

Mr. GLENN. I did not say, or should not have said, practically all, but a large proportion of it in the mountains; a much larger proportion than on any other one river system.

The CHAIRMAN. Has that denudation been for the purpose of making farms?

Mr. GLENN. It has been partly for farming; but in the last twenty years, or the last fifteen years, perhaps, it has been brought about largely by lumbering. On the point which you asked about a bit ago, as to the erosion due to lumbering and that due to farming, I find that in a good many of the stream basins there has been a marked change after the lumberman has gone through. About 10 miles west of Balsam Gap, for instance, there is a stream called Soco Creek, that is in the Indian reservation. Those Indians do not cultivate the land, except little bits of patches here and there, which are insignificant. But some years ago they leased the land to a lumber company to take out the timber, and they went all through that stream basin and took out the merchantable timber. Immediately the floods became very much worse, and the little fields which the Indians tried to cultivate down along the stream became practically worthless.

Another stream basin of similar type, the upper portion of which was all in forest, was lumbered. This was near Bakersville, the region that you saw. There was a storehouse situated down on the creek that had always been well above the water. It never had been known to be flooded. Within a year or two after lumbering had become very active in the upper headwaters that storehouse was invaded time and again by floods. They rose higher than they had ever been known to rise before and got into the store. That had never been known to happen under normal forested conditions. And I could give you other illustrations of the destructive effects of lumbering with regard to erosion.

The CHAIRMAN. Have you ever made any calculations that would tend to show the comparative area of headwater lands as compared with the total stretch of the stream?

Mr. GLENN. I have not.

The CHAIRMAN. You see what I am getting at?

Mr. GLENN. Yes. In working on a problem of that kind, Mr. Chairman, I should insist that one should take, we will say, the small stream unit—the stream unit that rises in the mountains and debouches out on the plains, and there joins some trunk stream. It is on that small unit, as I said in the beginning, that most of the flood destruction is wrought, where the damage is the greatest. Taking that unit, there would be a large proportion of steep slopes. Professor Moore does not deal fairly with the question at all, to my mind, when on this chart he gives an outline of the entire Ohio drainage basin, and then argues, by means of his contours, that the headwater proportion is a very insignificant proportion. It is true that if you take the entire basin it is a small proportion, though by no means insignificant; but the floods that are destructive do not occur down here so often or so destructively as they do just at the foot of the mountains. It is there that the locus of maximum destruction

occurs; and it is above that point that we would buy lands and keep them in timber to prevent that. This other part—the major part of the great general basin, with its rolling and flat lands—is an agricultural problem. It is not a forestry problem.

The CHAIRMAN. Exactly; and yet there must be vastly more rainfall on that part of the basin than falls on the headwaters.

Mr. GLENN. Yes.

The CHAIRMAN. Partly because it is bigger and partly because of the climatic conditions.

Mr. GLENN. That is undoubtedly true. That rain does not do as much damage, proportionately, as the rain that falls on these steep slopes here. It flows off more gently, less rapidly, and is entirely different in its character as a flood producer. The regimen of those parts of the streams or of the tributaries that lie entirely on those lower slopes, in the broad, general, plain region, is different from the mountain ones. We can hope to control only the mountain ones by reforestation. They are the worst ones by far.

The CHAIRMAN. How soon do you expect to get results in case this bill should be enacted?

Mr. GLENN. That, of course, is a difficult question to answer. It would depend on the amount of money available and the rapidity with which reforestation might be brought about.

The CHAIRMAN. The bill provides for an expenditure of \$1,000,000 the first year, and not to exceed \$2,000,000 for some years thereafter. Buying in land that rate, would you care to express an opinion as to how long it would be before we would get the results you desire?

Mr. GLENN. I should hesitate to express any positive opinion on that point. Generally, I should say that results would come comparatively soon; that much of the erosion that is active could be stopped within a few years, and that within a comparatively few years thereafter we ought to begin seeing some results. How long, though, in years, that would be, I should be unwilling to try to say.

The CHAIRMAN. Just one more question: Are you familiar with the values that are placed on these lands throughout the Southern Appalachians?

Mr. GLENN. My work there extended from 1903 to 1907. That is, it has been three years since my active field work ended and prices have doubtless risen since then. During the year that I spent in the portion of the mountains on the Georgia-North Carolina line there were lumber companies buying virgin forest lands about 30 miles away from the nearest railway, on the headwaters of the Hiwassee River, at \$1.50, \$1.75, \$2 and \$2.50 an acre. The representative of a company who was closing up, as he told me, a deal for 75,000 acres, said that his land was costing him, he thought, an average of about \$1.75 an acre. A kindred company, partly officered by the same men, though under different corporate management, was closing, in the same general region, a deal for 50,000 acres that cost it about the same. These were very low prices.

The CHAIRMAN. Have you any idea as to what the cut-over land would cost?

Mr. GLENN. I do not know what they hold the cut-over land at. In one portion of north Georgia I understood that some lumber companies were abandoning their cut-over lands, or had simply given them back to the county. They did not care to pay taxes on them.

I do not think, however, that is the general condition of things. Quite a number of the lumber companies are adopting conservative methods, and are holding their lands for future crops of timber, expecting to make them the source of perpetual supplies.

(The committee thereupon took a recess until 2.30 o'clock p. m. of the same day.)

AFTERNOON SESSION.

Pursuant to recess taken, the committee reassembled at 2.30 o'clock p. m., Hon. Charles F. Scott (chairman) presiding.

The CHAIRMAN. We will proceed.

Mr. WEEKS. I will ask Mr. Roth, the chief forester of the University of Michigan, to appear as the next witness.

STATEMENT OF PROF. FILIBERT ROTH, PROFESSOR OF FORESTRY, ANN ARBOR, MICH.

Professor ROTH. Mr. Chairman and gentlemen: I have here a number of photographs which probably would be quite interesting and instructive in this connection. If you will permit me to do so, I will start to explain them and pass them around as I refer to them. The first view represents a small view of the Southern Appalachians, in North Carolina. It shows part of the land forested; it shows the clearing made by gurgling; it also shows the valley in this clearing and what has happened, as was pointed out this forenoon—that is to say, a large amount of débris, gravel, and dirt has come into the valley and leveled up things, and in that way has led to a lessening of the capacity of that valley for convenient stream flow. I will, with your permission, pass this along. The next view is one in which the timber has been only partially cut out, and the thing has been converted into what you might call, perhaps, a park. On this photograph you can see that distinct gulleys have formed. That is to say—

The CHAIRMAN. From this distance it looks like an abandoned field.

Professor ROTH. It may be, although if it is abandoned it must have been abandoned a long time.

The CHAIRMAN. And it looks as if it had begun to reforest.

Professor ROTH. If it has been abandoned it must have been quite a long time ago, or else it was never perfectly cleared, whichever the case may be. The next view is one in which some of this abandoned land shows itself in the first stages of erosion. I think this view is particularly instructive. It shows that the slopes are gullying now and that a large amount of dirt, evidently, is being carried out from this particular valley. The next view here is one with which, I presume, all are familiar; it is a stock view and is published more or less. That shows these gullied lands in their extreme form.

Mr. HAWLEY. Are these photographs of the same particular piece of land?

Professor ROTH. No; they are from different pieces of land.

Mr. PLUMLEY. But in the same general sections?

Professor ROTH. In the same general sections, yes. I have here four other views which represent not the Southern Appalachians, but the Northern Appalachians; that is, the White Mountain country. This first view gives a general view of the mountains, shows their broad character, and shows, in the foreground, the cutting which has been in progress for some time, the timber being cut here pretty close [indicating].

The CHAIRMAN. Pardon me for again calling your attention to this picture, which evidently represents an abandoned farm. It is apparently quite a long distance from the mountains, as they appear very dimly in the background; the land which is represented here is of mild declivity, the slope is no greater than that which is farmed very generally through Ohio, and still more generally through Pennsylvania, and frequently in New York. Would you believe it to be the duty of the Government to purchase and reforest land situated as this evidently is and of that character of slope?

Professor ROTH. I would say, in the first place, that photographic views have a great way of deceiving. It is very difficult to say whether that is right in the heart of the mountains or whether it is in the foothills; in the second place, they have also a way of deceiving as regards the slope. It comes again to the matter of photographing the mule close by, if you please.

The CHAIRMAN. If the photographs are not to be trusted, what is the purpose of showing them?

Professor ROTH. This photograph shows the gullying and shows the ditches are there.

Mr. PLUMLEY. If you had the experience I have had in endeavoring to photograph slopes for practical purposes you would know that is true; you can not do it.

The CHAIRMAN. I realize the difficulty in that, and yet this represents land which is very common throughout the Appalachians; I have seen hundreds of fields of that sort, and unless you are prepared to state that it is immediately in the mountains or that the slope is really very much steeper, in fact, than it appears to be in the picture, it seems to me that the picture ought to be allowed to speak for itself, and I would come back to the original question as to whether you would think it advisable for the Government to purchase and reforest land like that evidently is and of that nature of slope?

Professor ROTH. If this slope and this land is such that a man can not make his living on it as a farmer, but allows it to get into this waste-land condition, in which this already is according to this photograph, I would say, emphatically, Yes!

The CHAIRMAN. And that he ought to be compelled to sell it and the Government ought to buy it and reforest it?

Professor ROTH. Those, of course, are details; but I think it would be very well to take care of that slope in connection with this enterprise.

The CHAIRMAN. Would you be willing to say that a slope of that kind could have been properly preserved by the right kind of farming, or is it inevitable that land on such a slope should get into that condition?

Professor ROTH. That again is a relative question. The Chinese people, and some of the people in Europe, who have the time and are willing to spend the labor in building retaining walls every 10 or

15 feet, can carry on certain kinds of horticulture and agriculture on immensely steep slopes, but evidently we in this country have not gotten there or near there. Whether this erosion could be prevented by a little better farming I would not want to say.

Mr. WEEKS. You would assume that if land were as valueless as that would appear to be, somebody ought to make it valuable, if possible?

Professor ROTH. Most assuredly.

Mr. WEEKS. You are quite willing to leave the quality of land and location of land to be purchased to the commission provided for in this bill?

Professor ROTH. Most assuredly.

Mr. HAWLEY. Does that represent land that is within the area proposed to be purchased?

Professor ROTH. Yes; that is my understanding. I should like to call attention to the last view that is going around amongst the members of the committee; it is particularly instructive as to the Southern Appalachians, because that illustrates, as perhaps no other view does the mischievous results of this erosion. In the first place, as was explained this morning, the matter of stream regulation depends very largely upon surface run-off, and the storage of water in the soil which will go to the underground water and feed our streams when much of the surface run-off has quit. Now, when land is once in the condition of this particular piece, where you have a gulley from 20 to 30 feet, you have exactly the same phenomenon as if a man would take a mountain slope and of his own volition dig a lot of trenches up and down its slope. I think anybody who would see him doing that would say he was making a mistake; he is draining, as it were, the very land which naturally drains faster than it ought to drain. Everybody would recognize that that land will wash and that the soil will disappear to quite an extent and he will lessen the storage reservoir into which this water can sink, as explained this morning. This next view shows the same country as is shown in this first view, shows the White Mountains nearer by; it shows just how thorough the cut has been and the large amount of debris which is usually left in these workings as they are operated at the present day. The next view there shows that same cutting after it is burned over and the rain has had time enough to wash the ashes off. You will see there the rocks washed bare, and you are there at the end of things. You have converted a locality which, before the forest was removed, was able to hold large bodies of water and give them off slowly; you have converted it into solid rock, run-off territory from which the water will run off about as fast as it falls.

The CHAIRMAN. Was that picture taken in the State of New Hampshire?

Professor ROTH. Yes.

The CHAIRMAN. Do you know whether state laws have been passed there attempting to prescribe methods of lumbering which would prevent leaving the forests in that condition?

Professor ROTH. Mr. Ayres could explain that better than I could, because he is from that section.

Mr. AYRES. We have the best kind of a fire law, to prevent fires, as comprehensive as any of the States, but we have not been able to devise any law by which lumbering could be controlled, because we

have not been able to frame a law that would meet the varying conditions.

The CHAIRMAN. No law that would prescribe the manner of lumbering, and which would prevent the leaving of the forest in the condition depicted in this photograph?

Mr. AYRES. I believe, sir, that no such law is found in any State.

Professor ROTH. This last view here is taken from the same district, and shows that even there there is the same start toward gullying.

I should like to say to this committee that we thoroughly believe, first of all, in this matter of the influence of the forest on run-off and through that on the condition of stream flow, and therefore in an influence upon our navigable rivers. I should like to say that with all the emphasis I am capable of placing on that statement. If your committee will vote out this bill I am willing to stand by you and take my share of the blame if there should be any criticism.

The CHAIRMAN. Let me ask you this question in that connection: In your judgment, would a properly plowed and cultivated field hold as much water as a forest on the same slope?

Professor ROTH. That thing has been a matter particularly of scientific investigation. The greatest soil physicist of the world, Doctor Wallny, made investigations into that subject. I would say that if you have a perfectly level piece of ground, such, for instance, as in your prairie States, with which I am perfectly familiar—I lived four years in Texas myself, and had a chance to see a good deal of the prairies and the prairie streams—or you take, for instance, on the Red River in the North, or take the country in the Dakotas, and so forth, there is no doubt but what tilling that land enables the water to get underground easier. On the other hand, in nearly every State in the Union, wherever we have rolling land—take it in my own country; I live in southern Michigan, where I see these things every day; we have in and around Ann Arbor, my home, this rolling land, a goodly portion of it having been cleared, and there is not a square mile, I dare say, in our county but what some of these lands have not stopped up; they have gullied, and the débris has caused them to get into very serious and bad condition. It has been claimed before this committee and in some of the publications referring to the matter that in our comparatively level countries these things do not occur, that the run-off is not influenced by the topography, as it were; that is not at all true. Even in our own rolling country we have a large amount of gullying. We had an old farm given to our university—not an abandoned farm, because we do not abandon farms in our county—and when we took charge of that farm, in 1904, there was a gully which I could not reach the top of in this manner [indicating], a gully probably as much as 40 yards or more long, which was getting worse every year; in front there was a fan-shaped talus, raw dirt, which had been washed out from the gully on to the meadow, and which very effectively prevented the growth of grass; and let me say right here, which may be instructive to all of you in this connection, that the first thing we did was to put a lot of brush into that gully; we planted that gully with locusts; and to-day you can see no trace of that gully in the way it used to exist, and that talus is completely sodded over; all of that has occurred since 1904.

Mr. LAMB. They have been doing that for hundreds of years in Virginia, filling gullies with brush.

Professor ROTH. Surely. I do not mean to say we have done anything new.

The CHAIRMAN. Your statement is particularly interesting, because you are the first witness that I remember who has been willing to admit that there was any erosion of a damaging or dangerous character except on very steep slopes; if they did admit it, it was after very great persuasion. Now, if land so gently rolling as you describe the country in and around Ann Arbor gullies in this fashion when denuded of its forests, how can we hope, as a federal proposition, to acquire enough of the land that may be necessary to prevent erosion?

Mr. LAMB. With all due respect to the impartial and broad-minded chairman of this committee, I think if he would search these records here he will find the reverse is the fact.

The CHAIRMAN. I will be willing to search the records; I have had that thought before me and given it attention very carefully, and I do not believe I am mistaken about it.

Professor ROTH. Gentlemen, I am here to tell the truth; I want the whole truth, whether it is on our side or the other side that makes no difference; but, Mr. Chairman, you are mixing up things. That little gully, that little slope of ours, though it may be an insignificant one and generally is in the rolling country of our Lake States, is just as steep, as far as the angle is concerned, as your mountain country; and that is where the trouble begins. Mr. Chairman, right in your State, in the prairie States, take those cedar brakes of Texas, look at them wash—

The CHAIRMAN. The point I was trying to make was this, and I am not doing it in any contentious fashion. I am trying to get the truth of the matter, although I do not pretend to give out the impression that I go with you just as far as you are willing to go; at the same time I am very anxious to bring out the truth on this proposition all the way along. The language of all the bills seems only to look to the acquisition of steep mountain slopes, and the impression follows, undoubtedly, that we are not to purchase land of the milder slopes. Now, the question I was seeking information upon from you—because I recognize you are an expert—is whether the object will be accomplished if we confine purchases to the steeper mountain slopes, in view of your statement that even the mild slopes, which it is not intended to purchase, will yield to erosion?

Mr. WEEKS. Mr. Chairman, before he answers that may I inject a suggestion?

The CHAIRMAN. Certainly.

Mr. WEEKS. It is to this effect, that it is not proposed in the bill that is under consideration, or any other bill that I know of, to buy lands other than those upon the headwaters of navigable streams. I do not think it is suggested that we buy any lands anywhere where there may be erosion, or some other effect, but only where the Geological Survey will show that there is a connection between forestry and stream flow. Therefore, if the stream which is being discussed, or any other stream, is not a part of a navigable system of streams, there is no connection whatever, and it does not seem necessary to waste any time on it.

The CHAIRMAN. Your remarks seem to emphasize the point I was trying to make. That point was the fact that these bills do limit the purchase of lands to those at the headwaters of navigable streams, and I think the testimony has all gone to the effect that the lands which will probably be purchased will be the slopes that are too steep for farming.

Mr. CURRIER. It surely is not intended to purchase any land that is more suitable for farming.

The CHAIRMAN. That also emphasizes the point I was trying to make, that the purpose of the bills is largely to prevent erosion. Mr. Swain has said the whole case rests on the erosion question, and, as Professor Roth has been telling us, erosion goes on inevitably and necessarily on even mild slopes.

Mr. WEEKS. On the contrary, it is not the intention of the bill to necessarily prevent erosion; it is the purpose of the bill to protect navigable streams.

Mr. CURRIER. You protect them both ways.

Professor ROTH. I should like to answer your question, Mr. Chairman. A man who has \$500 and desires to build a house builds a \$500 house; a man who has a great deal of money may build himself a \$100,000 house, but they are both houses, they both answer their purpose, whatever it may be. It is just so in this case; the time will never come when erosion will be stopped altogether, but erosion is a hundredfold greater from a nonforested steep slope than it is from a wooded one. It is worth while, and it is most emphatically important, for the streams that go through that country to have that protection, even though there may be a small amount of insidious erosion going on at all times, and probably always will and always has. For instance, you take this picture [indicating] and you see that shows serious erosion; it shows there is a great amount of dirt brought down off of that comparatively smooth and even surface in a few years. Now, as I understand this bill, it is to prevent the continuation of this very same thing, or, rather, the extension of that very same thing as to the entire mountain slopes.

The CHAIRMAN. You would purchase land which is more profitable for farming than for other purposes?

Professor ROTH. No; I do not think I would. However, that is rather interesting, because that same thing has been emphasized so much—as to how much of those mountains is being farmed to-day. It would probably be interesting to know about that, and it may be that such information has been put into evidence, for aught I know. But if you take all of those States that are interested in the Southern Appalachians—that is, Kentucky, Tennessee, and so forth—you will find that only about 75 per cent of all the land is settled in farms, the rest belonging to other people; that only about 35 per cent of your land, mind you, and that includes your best counties, is actually being used. In over one-half of the counties of these several States the farmers are not using agriculturally one-half of their land. And you can take counties like Pike County, Ky., a county which has been settled for a long time by intelligent people, who have made their living by farming, and the farmers there to-day own the greater portion of that county and are not utilizing one-fifth of the area which they own. Now, under those circumstances, isn't it reasonable, to suppose that there will always be enough agricultural lands, espe-

cially in view of the trend of agriculture in the direction of intensive rather than extensive? Those people are leaving the farms, going into better farming districts; there are too many living there. So, on the whole, it does not seem at all reasonable that an enterprise of this kind would in the least affect the agriculture of those districts. Furthermore, it is already provided in the bill—and I am sure Congress can provide for it at any time—that if any of these lands are at any later time necessary for agricultural purposes that this piece shall be let go and that piece shall be let go, when some one actually wants it and wants to build a home on it.

Mr. WEEKS. It is in the bill now.

Professor ROTH. That was my understanding. Mr. Chairman, do not misunderstand me and think I have any animus, because if I become a little more animated than I should it is not a feeling of contention; it is not a feeling of animus in the least; it is only a little defect of my own in not being accustomed to this sort of procedure. I lecture in a lecture room, where my audience can ask all the questions it wants, but we have a very easy and cool time of it. I merely make this statement because I may have dwelt too long upon irrelevant matters. Now, there is another thing that has come into this controversy. From some of the things that have gone before it is quite apparent that the forest is considered valuable for timber; that the forest, in other words, can do two, three, and four different things and be useful. Is that any reason at all why we should ignore it as the greatest and most feasible regulator of stream flow? I should say no. It has already been hinted at, and has been emphasized in this very publication, that the forest should be standing on its own merits, as it were.

Mr. LEVER. What publication is that?

Professor ROTH. This is Moore's report. If that has any meaning whatever it means if the timber is not worth protecting—that is, the wood supply—it should not be protected at all. That seems to be an extraordinary statement to make. The Adirondacks, for instance, which come out of this controversy, are worth millions of dollars; the Alps are worth many more millions of dollars, simply for recreation purposes. Would that be any reason why one should go before the Swiss Legislature and tell them that their mountains should not be protected from the standpoint of water supply? Not for a second.

A good deal of this controversy has lacked—and we feel that very keenly—scientific demonstration. We are now living in an age where we will not believe things we see unless we can weigh them on a Fairbanks scale or demonstrate them in a test tube. Now, there is a whole wilderness of truth that has governed the human race from its beginning which is not thus measured and never will be, and your very man here, in his little publication, himself admits that a great deal of this controversy rests on empiric study. Let me ask you: Isn't the farmer out in your district as fully competent to judge as to some of these matters as those who depend upon empiric study? Aren't the opinions of thousands of men, literally millions of men, to be given any consideration? Aren't the opinions of the farmers of Southern California, many of whom are college-bred men and the very best there are in this country, just as valuable as the opinion of some scientific man who admits right here in print that the whole thing rests upon empiric study? Isn't the opinion of such men as Alexander

Humboldt, who is to-day acknowledged to be one of the greatest travelers on earth and whose *Cosmos* has been translated into every civilized language and is read to-day with great care and is as driven gold to the present day, isn't his opinion worth something? Or do we need to throw aside, because of one or two or three isolated cases, what millions of the people of the United States and millions of people of Europe believe to be a truth after centuries of experience?

There is another side to that same line of thought, with regard to this thing resting largely on empiric knowledge. Isn't it worth something to the people of the United States to know that millions of people to-day in Europe believe, after having the advice of the most competent of engineers, and as we have already had shown to us, that this is the correct plan, and that they have adopted it after years and years of study? You can rest assured that there were contrary minds in Europe as much as here. Isn't it worth something to know that the people of Europe to-day believe in this regulation of stream flow, and that therefore there is an influence upon their navigable rivers through the forests? Isn't it important that those people not only believe in it, but have already instituted some of the best legislation, until to-day the term "protective forests" means something definite; it means a forest which protects the land from erosion, protects the streams from floods and drought, and protects the streams from sediment. Now, those people are doing those things, and have been doing those things for a number of years. And those people over there are far ahead of us upon this subject. Isn't it worth something to you, gentlemen, to know what was said when the law providing for the administration of the western forest reserve was enacted, in 1897, by you or by your predecessors? What did that law say? It said that the forest reserve shall be "for the purpose of securing favorable conditions of water flow." On the whole, I think we are far more nearly united in our opinion about this whole thing than we seem to be, and as far as the essential features in this matter are concerned I believe we are quite agreed. In the first place, I believe everyone has been perfectly willing to admit that there were and probably will be floods and droughts, just as much as you have seasons of heavy precipitation and small precipitation. We build houses, but do not build them for cyclones; we know that a cyclone is a possibility at any time, but we build a house to shelter us; if a cyclone tears it down we build another one. In the same way we farm. What does this law teach us? It teaches us that mankind of necessity works for the ordinary conditions. It is these ordinary conditions that we deal with.

I presume many of the things I say have been said here repeatedly, but I hardly think they have been emphasized sufficiently and I trust you will pardon me if I repeat in any particular. I think one thing that has not been emphasized sufficiently is that the forest is a large and permanent condition. For instance, if you take all the land which is to-day not in agricultural use throughout these mountainous regions you naturally take 90 per cent, and that 90 per cent means 10,000,000 acres. This is a large influence, and it is a permanent influence. I think we generally acknowledge or agree that these forests can do certain things and do those things at all times and under all conditions; I think there is no disagreement at all about that. We know

that lands in forested countries do not erode and lands in unforested countries do.

Mr. LAMB. And it does not take a scientist to tell us that?

Professor ROTH. There are hundreds of thousands of people who have seen it, see it every day. You can not ride on a train leaving this city without seeing it.

The CHAIRMAN. Directly on that point. The question I should like to ask is whether, in your judgment, it would be more important, the object being to protect a stream, to have the lower slope or upper slope on the mountains in forests? I have drawn here a very rough sketch which I will ask you to imagine represents the slope of a mountain. Now, suppose that it were possible to denude this very steep slope, but to leave the lower slopes in their original forested condition, would the result be better or worse than if the situation were reversed and the steep upper slope allowed to remain in forest and the milder slope stripped and cultivated?

Professor ROTH. If your mountains were exactly of that form, so that your hypothetical case would fit the natural case, which it never does, I would say I agree with you, that probably the greater amount of rain comes on your so-called lower slopes.

The CHAIRMAN. So, isn't it true, also, that if the lower slopes remained forested the soil which did wash down from the steep slopes would be caught in the brush and litter of the forest floor?

Professor ROTH. No; not at all.

The CHAIRMAN. It would not be carried down?

Professor ROTH. Not at all, sir.

The CHAIRMAN. That does not follow?

Professor ROTH. On your upper slope, in your hypothetical condition, you can not find 1 square mile but what has a dozen runways into which the water gathers; the water, with its load of dirt, goes into that runway, and the very minute it does that it is gone to us; it runs to your river and spoils your river for you.

The CHAIRMAN. In what way would this hypothetical case that I have suggested differ from the average actual condition as to its effectiveness in retaining the lower slope in forests?

Professor ROTH. In the first place that does not truly represent the mountains as they are. Your mountain generally, whether it be an ordinary small ridge only a thousand feet high, or whether it would be one of your chains of Appalachians, makes no difference; it is not an uniform, even affair; it is not a straight, smooth, and even ridge; it is a ridge in which there are natural channels down the mountain, and the ridges are more or less independent of each other; and that diagram, if you please, fails to properly show the conditions. I have been told that the distribution of water is along three ways—I am afraid I am taking more than my share of the time.

Mr. WEEKS. You may have ten minutes more.

Professor ROTH. I think we are all agreed that the flow from the mountains is more rapid than the flow from the plains, although I might say that I am wrong. I find in Mr. Chittenden's paper a statement which I would like to have you hear. I would like to emphasize it because it seems to me a most remarkable statement to be made by anybody: "A mountain stream carries off the water within its banks a great deal faster and more safely than a similar stream in the lowlands. The banks are almost always stable and the bottoms rocky or

composed of heavy gravel or bowlders; in fact, floods do less harm on such streams than on any others. In the lowland, where the streams have smaller slopes and unstable banks, much smaller run-off produces greater floods and more destruction." Do we infer from this that mountains are the country where floods do not occur and that in level countries floods do occur? I could hardly agree with that. I have gone through the Santee, one day through cypress country dry shod, and the next day I have gone in a canoe in from 4 to 10 feet of water, and when I talked with the men in that country they did not call it a flood; they only called it a small freshet. A flood like that would be a disastrous flood with us. A mountain country is the flood country, and a mountain country spills its water faster; the faster that water runs off the more danger of producing a flood and the less chance the water has to get underground so as to become of permanent use to us, and that is exactly where the great use of the forest comes in.

Now, then, in the remaining ten minutes I would like to say that there is one side of this whole question not especially emphasized. That is, what else can you do for your rivers? Are you going to build a lot of dams and reservoirs, and build one dam and one reservoir after another? What are you going to do if you do that? If you do that you will not only spend hundreds of millions of dollars, but you must take the only lands that are of any use for permanent and successful agriculture on those mountains. If you do any such thing you will build locks and build reservoirs one after another and the first time any one lets go you will have Johnstown repeated. That reservoir system would also result in the displacement of a great many concerns of importance, railroads, buildings of all sorts; things that are already in existence and already doing good. If such steps should be taken would it do the work? If you build your reservoirs and let the destruction of your forests go on I will promise you that your reservoirs will fill with mud and be useless.

Now, one more point. There is some talk about the hundreds of millions of dollars of expense that this will be, but I want to say to you that the maintenance of forests on these mountains is not only a feasible and perfectly practical means of regulating, to a very large extent, your stream flow, but it can be done without costing anyone a single cent, and that, I think, is a thing worth considering. If you will go and buy these lands, buy them judiciously, and buy them liberally—I do not mean that there shall be any graft in it; I do not mean that you shall pay \$100 for land worth \$3, but I mean liberally in the sense of buying enough—and if you will introduce good administration, such as you are now establishing on our western forest reserves, I will guarantee that you will make the thing entirely self-supporting and get your money back; so that, instead of being an expense, in the ordinary sense of the word, it will be nothing more than an investment.

Mr. LEVER. Have you read the report of Professor Moore?

Professor ROTH. Yes.

Mr. LEVER. I take it you do not agree with his conclusions as to the effect of forestation or deforestation on stream flow?

Professor ROTH. These things are hardly his conclusions.

Mr. LEVER. Do you know anything of the scientific training of Professor Moore?

Professor ROTH. No, sir; I do not. I can not find out where he stands, except he was introduced at the time I was working in the Department of Agriculture.

The CHAIRMAN. In common fairness to an official of the Government, who is not present, I should like to inquire if it is not true that Prof. Willis Moore is recognized as one of the foremost meteorologists of the world?

Professor ROTH. Oh, not by a long shot; not by a mile square.

Mr. LEVER. Is he recognized at all as a forester?

Professor ROTH. Not at all; not in any sense of the word. Let me state some things with regard to matters referred to in the report Mr. Moore has made. He states he is dealing with exact scientific facts, and then he says: "We must, therefore, reason empirically from the best information at hand." I take it that every farmer can reason just as empirically as he can. Then, again, on page 22, he quotes from Mr. Bailey Willis—I am sorry to say there is too much Willis in this business—and Bailey Willis is right: "For in so far as we clothe the surface with green crops we lower the temperature of the rising air and favor precipitation on the verdure-covered plain." That is mere common sense. That requires no explanation. Then, Mr. Moore goes on and says, "It would be difficult to either confirm or disprove this statement of Mr. Willis."

The CHAIRMAN. That is a question of meteorology rather than forestry?

Professor ROTH. It makes no difference.

The CHAIRMAN. Which is the greater meteorologist, Mr. Willis or Mr. Moore?

Professor ROTH. I am not a graduate in meteorology.

Mr. LEVER. But you do know something about forestry?

Professor ROTH. I certainly do. And right there a thing has crept into this situation. I think you gentlemen have frequently noticed the timidity with which some of the men, including myself, come before you; but we are afraid of our positions; we realize that our friends all over the country, including the women's clubs belonging to the Women's Federation, have made too many claims. Many of them can not be scientifically proven, but most all of them have some common sense.

The CHAIRMAN. Mr. Weeks, Mr. McLaughlin may not be able to stay throughout this afternoon's meeting, and he desires to propound some questions to you.

Mr. McLAUGHLIN. Do you think the bill can be amended so as to safeguard it in some particulars? The bill provides that the Secretary of Agriculture shall examine lands and ascertain what are necessary and report those lands for examination to the Geological Survey, and the bill also says that he shall determine the price to be paid. Is there any danger that after he has determined that certain lands should be purchased, and after the Geological Survey has determined that they are absolutely necessary, the price of those lands will be put up to a degree where it will be very expensive, to say the least, for us to buy them? Would it be possible for us to provide in the bill that the Secretary of Agriculture, in the first instance, the first step he takes, should get an option on these lands so as to protect the Government against the danger of having to pay too much for the land?

Mr. WEEKS. I regret to say that that is a complicated question. I have never known an option to be obtained that the option did not

carry a price very much higher than the real value of the property. When you go to the average man and ask him for an option on his property he thinks there is something about that property which he does not understand, and he invariably puts a higher price on it than he would if he were going to sell it outright.

Mr. McLAUGHLIN. But doesn't experience show that money is saved by getting an option on lands?

Mr. WEEKS. I will answer that by saying that I do not think it is of importance that any particular piece of land be purchased at present; I think the officers having in charge the purchase of land must use the best judgment they have and make purchases as cheaply as possible. However, I will say this, that anything that can hedge about the safety of the Government in carrying out the provisions of this bill will be entirely satisfactory to me; in drawing it I believed we had gone as far as we could in that respect.

Mr. McLAUGHLIN. I do not suggest this as a lack of confidence in this board; but it seems to me that this can arise; that the Government might be compelled to pay a large amount of money; that the owner of a particular piece of land might not appreciate its actual need or the Government's need of it, and the Government, after a thorough examination of it, may find it absolutely necessary to buy it, and it would buy it, regardless of the price.

Mr. WEEKS. I do not think that the board ought to do that; I think the board would not be justified in doing that. There will be land enough upon and near the heads of navigable streams to take the appropriations provided in this bill. We are providing in this bill for only six years, and it will not be necessary to buy this man's land or that man's land, so whatever land is purchased will, presumably, be at a reasonable price.

Mr. McLAUGHLIN. This is not altogether my idea, although I can see that it might be wise to have something of the kind I have suggested placed in the bill; I have talked with Members of the House about it, and they have said: "Suppose the Geological Survey determines certain lands to be absolutely necessary and the owners put the prices away up, wouldn't the Government be mulcted?"

Mr. WEEKS. I think not; there is every assurance that the Government would not be mulcted in any way.

Mr. PLUMLEY. Isn't it a fact that most of these lands, the lumber lands, around the headwaters in the White Mountain region, are owned by large lumber companies, that they have no interest in the lands aside from what they will give in the way of lumber and have always been ready to sell them at a low price whenever the chance was presented, and that there are practically no lands owned by individuals?

Mr. WEEKS. That is partially true, and still there are small lots owned by individuals.

Mr. RUCKER. That fact being true, I take it that the lands spoken of are absolutely worthless and could not be sold at any price?

Mr. CURRIER. That is not usually true, except the lands on the very high slopes. There is such a profound interest in forest reserves in our section that the lumbermen insist that they would sell to the Government cheaper than to any private individual, because the lumbermen and everybody else are interested in the reserves.

Mr. HAUGEN. Isn't it true that this board is to be made up of practical and experienced men?

Mr. WEEKS. This board includes three of the highest departmental officers in the Government, two Senators, and two Members of Congress. In my innocence—political innocence—in drawing the bill last year I included only one Senator and only one Member of Congress; my attention was called to the fact by my good friend Captain Lamb that that would make it a Republican board; we have provided in this bill for two Senators and two Representatives, so that if there is any question about a political division in the make-up of the board each party may have a representative. I do not see where we could get a more responsible board than one composed of three Cabinet officers, two Senators, and two Representatives. Necessarily, those men are not going to make a personal examination, except in unusual cases, perhaps, but they are going to employ departmental officers or others for that purpose. Provision is made in the bill to cover the expenses of the board, the amount carried being \$25,000 a year; when the lands have been investigated, the Geological Survey has passed on them, and the Secretary of Agriculture recommends them, then the board would act upon such recommendation. I do not see where you are going to get a more responsible board than the one mentioned in this bill; and they are selected for another reason, because it does not cost anything; all the members are employees of the Government, therefore the expenses of the board, other than their traveling expenses or general expenses which they may incur, will be nothing.

Mr. HAWLEY. Have you provided in this bill that in case satisfactory agreements can not be made that the Government can condemn the land?

Mr. WEEKS. Yes; I think that is in the bill.

Mr. HAWLEY. If you do not have such a provision in the bill, then the prices may be greatly increased.

Mr. WEEKS. I think that is in the bill.

Mr. CURRIER. I have the impression that it is not in the bill.

Mr. HAWLEY. I looked through the bill, and I could not find it.

Mr. CURRIER. I do not think there is any right of condemnation at all. Mr. McLaughlin, under section 8, of course, the Secretary of Agriculture is not compelled to purchase when the Geological Survey reports and fixes the price; he is simply authorized. Now, the belief is that under the provisions in this bill the Geological Survey and this commission will have great opportunities of selection.

Mr. RUCKER. What would be the basis for fixing the value of these lands, taking the lands where the forests have now been removed? If this bill passes, wouldn't the people have a tendency to put up the price of the lands?

Mr. CURRIER. I know that in that district a few years ago, when a man stripped the land he would not pay taxes, and it would be sold for taxes; but none of that land is going for any such purpose at this time; there is a sale for that land in New Hampshire.

Mr. RUCKER. Is it cheap?

Mr. CURRIER. Yes. But I have a man in mind who twenty or twenty-five years ago purchased these cut-over lands in his section, and that man recently died and left a large estate.

The CHAIRMAN. What is it that has created the market for these lands?

Mr. CURRIER. There is no market for the lands on the high slopes, where they can not reforest; on the lower slopes it reforests itself. As I stated to the committee a year ago, through my section of the country the white pine comes in; when the land is abandoned, it comes up in white pine.

The CHAIRMAN. You said a moment ago that a few years ago the cut-over lands were sold for taxes, but that condition does not prevail now?

Mr. CURRIER. No; it does not.

The CHAIRMAN. I was wondering who was purchasing the land, and for what purpose.

Mr. CURRIER. I, myself, would buy good cut-over lands at a reasonable price in my town to-day as an investment.

The CHAIRMAN. That would be on the slopes that would reforest?

Mr. CURRIER. Yes.

The CHAIRMAN. But not on the upper slopes?

Mr. CURRIER. No; after they are cut over and burned over, after their complete erosion, they are worth absolutely nothing; nothing can be done where erosion has been complete, and after two or three fires on the high slopes erosion very quickly becomes complete.

Mr. WEEKS. I will ask Mr. Dawe, managing director of the Southern Commercial Congress, to address the committee.

STATEMENT OF MR. G. GROSVENOR DAWE, MANAGING DIRECTOR SOUTHERN COMMERCIAL CONGRESS.

Mr. DAWE. I have been invited into the committee, not as an expert who knows anything regarding forestry as such, but simply as a business man from the South, who, like Professor Moore, knows the way the wind blows, and, like Professor Moore, I did not start in professional life. As a business man, and looking at this problem merely from the viewpoint of a business man, the question presents itself in this way: In January, 1900, there was brought into this very committee the first move looking toward the acquirement of the Appalachian Forest Reserve, although it was not called a forest reserve in those days. The States in the South most deeply interested, though they had in the previous generation warred most vigorously regarding state lines, passed acts which have given the United States Government the right to proceed in this matter, and those acts were passed by North Carolina, South Carolina, Virginia, Tennessee, Georgia, and Alabama in the year 1901. The dates of those I can supply, if necessary, though those acts must be familiar to this committee. In various forms this situation was brought before this committee and finally, by a vote of 11 to 7, was reported out of this committee during the last Congress. Therefore, up to the time of the present Congress, the committee was in favor of this step. However, there have come into the committee, since that time, four new members; there were seven opposed to this act at the time of this favorable report from this committee, and the problem therefore is, as a business man, to approach the good judgment of the seven who opposed it and the four new men who are here now.

Speaking for the commercial organizations of the South—because the Southern Commercial Congress is nothing but a combination of the commercial organizations and business men of the South—speaking for the commercial organizations of the South with some degree of assurance, I can assure the members of the committee who are here from the Southern States—I think there are six—that the prompt action of the legislatures of these States in passing enabling acts in 1901 absolutely confirms the position of these six members relative to a favorable report from this committee. That is my view as a business man and looking at in a cold-blooded business way. It is an action that is expected by many business men of the South who are interested in the permanent mountains of the South and who are not interested in their denudation, as has been demonstrated in the last twenty years; I mean the selfish denudation, the purchase of these tracts of timber land for a song by external capital, and then the ripping and tearing away of every available piece of timber out of that timber tract, no matter what happens after the timber is gone. Now, as a business man and not having great scientific knowledge, I can speak to members of the committee who are in the same class, and there are a number here who are just business men, and do not pretend to have scientific knowledge.

Erosion should not confuse any of us because, from the very dawn of creation until now, erosion has gone on, and from now until the crack of doom erosion will go on. The very inhabitability of the earth depends upon it and for boundless ages it will go on. But the human creature came on the surface of this earth and had it within his power to destroy the plan which nature has been careful to hedge around everything in created life or in the life of soils, and he comes in and he can, by one year's neglect, undo that which it has taken ten thousand years to build up. A foot of soil comes in ten thousand years; theoretically, that is the estimate, and a man can handle that soil badly and he can never bring it back into its original condition. In ten thousand years that soil may come back to good condition again, but we can not wait ten thousand years; we are living right now, and there is where the business sense of the Southern States—I am not speaking now for any other portion—that is where the business sense of the Southern States comes to assist the action of this committee, because it needs no great skill to see which way the wind is blowing.

In the Southern States we are coming to a period of constructive statesmanship; we are not going to be content any longer with mere vapping statesmanship. A certain action which took place in Jackson, Miss., ought to indicate the desires of the business man. The business man is looking forward to a constructive period in American history; it is coming to the front in the Southern States, and a business man sees perfectly well that the rapid clearing away of our wealth of timber means the destruction of one of the great elements of perpetual southern power and leadership in lumber lines. I would like to say that the constructive statesmanship of the South is holding up the hands of that great, good immigrant, James Wilson, who is a constructive statesman because he makes two things grow where but one thing grew. The South is absolutely in sympathy with everything he has done and everything he hopes to do, or his successor may do, when, in the course of time, he has grown old and gray and lies

down with his task well done. And nothing, as we see it from the South at present, is going to satisfy that region, which is full of possibilities and resources, but constructive statesmanship. By the way, politics, whether it be the Republican party or the Democratic party, which favors the constructive basis, is not at the present time the paramount idea in the Southern States; the paramount idea there is to leave matters in such form that our children and our children's children shall enjoy life.

Now, regarding rapid erosion; I am not speaking of normal erosion, because that goes on forever, like the streams; but, granting the truth of the arguments regarding rapid erosion, I think one of the reasons in California will illustrate it perfectly. The Sacramento Valley became filled up with débris caused by hydraulic mining; that resulted from nothing but too rapid erosion. We do not desire to have the reserves which belong to the Southern States permanently injured; and, as you know, the South is the richest of all in navigable streams, and we can never feel that we have been squarely or rightly dealt with if such a thing is permitted. We have, as you know very well, over 20,000 miles of navigable streams in the South, out of 26,000 in the whole United States, and we do not want them injured, because, when the railroads are so congested they can no longer handle what we produce, we expect these navigable streams to be of great benefit to the South and to the nation. We ask, therefore, that the bill be reported favorably and that it be settled not on the division of political parties, but simply on the line of those who are in favor of constructive statesmanship and those who are not in favor of constructive statesmanship.

Mr. RUCKER. As I understand your argument any man who aspires or claims to be a statesman must favor this bill; otherwise he is condemned?

Mr. DAWE. It would be very improper for me to condemn anybody.

Mr. RUCKER. I understood that to be the effect of your language.

Mr. DAWE. This appears to be a constructive piece of statesmanship, because it is purporting to hold for the benefit of all time, and which, under present circumstances, would be for our benefit.

Mr. RUCKER. I understood your concluding remark to be that the committee should divide on this question, not on political lines, but on the proposition whether we were in favor of constructive statesmanship or against it.

Mr. DAWE. My anticipation is that there will be no division of the committee.

Mr. RUCKER. I think you are mistaken about that.

The CHAIRMAN. What steps have been taken by the States of the South to inaugurate a state policy such as the States of Vermont and Massachusetts have entered upon?

Mr. DAWE. Very little, so far.

The CHAIRMAN. Do you not think that this would be an excellent opportunity for the exercise of some constructive statesmanship?

Mr. DAWE. Yes, sir.

Mr. LEVER. We have a law in North Carolina and a law in South Carolina, have we not?

Mr. DAWE. Yes.

Mr. LAMB. They have had troubles of their own.

Mr. CURRIER. In regard to the suggestion made in relation to the States doing this, take the State of New Hampshire. Substantially every stream of navigable size there rises in the northern part of New England, and these streams are of much more value to other States than to the State of New Hampshire, for all purposes. If there ever was an interstate project, this is one. New Hampshire, one of the smallest States in the Union, a comparatively poor State, is spending more to-day for improvements for the use of the public in proportion to its population and its wealth than any other State in this Union. Should New Hampshire, a little State and a comparatively poor State, be compelled to make that expenditure for the benefit of Maine, Massachusetts, Connecticut, and Vermont? So far as power is concerned, the Merrimac is of more use to Massachusetts than to New Hampshire, and the Connecticut is of infinitely more use to Vermont than it is to New Hampshire, and the Saco is not utilized at all in New Hampshire, but largely in Maine. The Androscoggin, with just one waterfall in New Hampshire, is all the rest in Maine. New Hampshire to-day, in addition to the amount of money spent for highways, in addition to the amounts that the towns everywhere are compelled under the law to raise, which is a liberal amount, has been contributing \$125,000 a year out of its treasury for the creation of permanent roads, and in addition to that the State is issuing bonds to the amount of \$1,000,000 to be expended this year—that little State, with 400,000 people and two Members of Congress. New Hampshire alone can not assume this burden which is for the benefit of other States.

Mr. LEVER. What is the \$1,000,000 for?

Mr. CURRIER. Permanent highways—three boulevards running the length of the State, not particularly for the use of the State, but thoroughfares through the State—\$1,000,000.

Mr. RUCKER. Are they already constructed, or are they under process of construction?

Mr. CURRIER. They are under process of construction.

Mr. LEVER. Let me say that what is stated of the White Mountain situation is absolutely true of the situation as between North Carolina and South Carolina. Every principal navigable stream of South Carolina has its rise in the mountains of North Carolina.

The CHAIRMAN. I think the committee understands that. The principal point of Judge Rucker's question was, I assume, admitting that this is an interstate problem, the States are not to be excused from doing what they can.

Mr. CURRIER. New Hampshire does not want to avoid this. New Hampshire does think that this should be begun here, but New Hampshire will contribute to the extent of her means.

Mr. COLE. Do you know anything about the scientific training of Doctor Moore?

Mr. CURRIER. I refer that question to Mr. Lever. [Laughter.]

Mr. LAMB. I rise to a point of order, Mr. Chairman.

The CHAIRMAN. The point is well taken.

ADDITIONAL STATEMENT OF HON. JOHN W. WEEKS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MASSACHUSETTS.

Mr. WEEKS. As there are no more witnesses, I wish to make a brief statement of some changes in this year's bill. The point which is made about cooperation is one of the principal features in the bill, and is one in which there has been a change made from the bill of last year. The amount provided for fire protection has been increased from \$100,000 to \$200,000, and, as last year, it is provided that this money shall be expended only in States where the State appropriates a like amount. My judgment is that \$200,000—or \$400,000, if the entire amount is spent—could not be spent for any purpose which would result in saving as much property, and that has been my reason for increasing the amount provided for in this bill. Instead of taking the receipts of the Forestry Service, as was provided in last year's bill, for the appropriation for purchasing land, the money is to be taken from the Treasury. The net result to the Treasury is exactly the same, because the forestry receipts go into the Treasury and they would have been drawn out for this purpose; so that practically it makes no difference whether forestry receipts are taken or whether other money is drawn from the Treasury. The life of the bill has been reduced from nine years to five years. The appropriation has been left at \$1,000,000 for the first year; and for the following four years, \$2,000,000 a year.

The **CHAIRMAN.** May I inquire where that provision appears?

Mr. WEEKS. Which provision?

The **CHAIRMAN.** Limiting the life of the bill to five years.

Mr. WEEKS. It is section 4, line 3.

The **CHAIRMAN.** I see it now.

Mr. WEEKS. My reason for making that change is that if after carrying out the provisions of this bill for five years the measure is not justified, it never will be, and the appropriations should be stopped. If it has justified itself, then there will be a reason why those who are here in our places should provide ample money to carry on this work. I have stated my reason for changing the number of members authorized for the commission, and the only other change in the bill is to reduce to 5 per cent from 25 per cent the part of the receipts which are paid over to the counties in which the lands are situated. It was made 25 per cent in the original bill because that is the amount which is turned over to counties in which lands are located, from the forest reserves, in the Rocky Mountain and western sections; but 5 per cent would undoubtedly cover the amount which the county might lose from taxes, and therefore it has been reduced from 25 per cent to 5 per cent.

Now, I want to say just one word about Professor Moore's statement. If the committee has not been satisfied by the statements which have been made here by the experts who, to my mind, have completely answered any conclusions which Professor Moore may have arrived at, I think I can give the committee a homely illustration of the fact that his conclusions are entirely wrong. Like Professor Glenn, I am one of those men who was brought up on a farm, in my case in New Hampshire. At this time of the year in northern New Hampshire there is usually about 3 feet of snow on a level. In the spring, in

April, they make maple sugar up there, and the snow in the open, in the pastures, disappears by the middle of that month, while the snow in the woods will be from a foot to 18 inches deep. I have many times myself gone across a pasture when I could have gone across it in thin-soled shoes without wetting my feet, and found from a foot to a foot and a half of snow in the forest. It seems to me only a reasonable conclusion that if that forest had been cleared, the snow in the forest, which was on exactly the same slope, would have melted at the same time the snow in the pasture did. In other words, there would have been an augmented flow of water when the snow went off in the pasture and a less flow afterwards. The same condition would result after a heavy rain storm; the water in the pasture would run off rapidly, while the water in the forest would be held back by the trees and by the soil, so that the flow from that part of the estate would be very much lessened in its rapidity; the small rivulets from the forest would be running, even where there were no springs, long after similar rivulets in the pasture were entirely dry. There is not a farmer who lives in a hill section or a farmer's boy who was brought up in a hill section who does not know these facts. They answer completely, in my judgment, the conclusion which Professor Moore has come to.

Mr. RUCKER. Does Doctor Moore deny that proposition?

Mr. WEEKS. I do not know, but I deny his.

Mr. RUCKER. I say, does he deny what you are stating now?

Mr. WEEKS. Yes, he denies that.

Mr. PLUMLEY. He does, in effect.

Mr. WEEKS. Yes, he does, in effect. But even, Mr. Chairman, if the committee is not convinced by the statements which have been made here of the effect which forestry has on stream flow, I want to call the attention of the committee to this one fact, that unless the Geological Survey does develop some connection between forestry and stream flow, there will be no expenditures of money for the purchase of land. We must leave these details to some one, and the Geological Survey is the proper governmental agent for that purpose. If the experts in the Geological Survey are not competent to do it, we had better have some changes made. In other words, there is a complete check on any possible expenditures which may be made to carry out the purposes of this bill.

Mr. Chairman, just one word more. This measure, or a similar measure, has passed the Senate twice and passed the House once. It is therefore not new. I believe it is the function of a committee of this House to consider new legislation and report the results of its investigations, but I believe it would be a great injustice for a committee to fail to report out a bill of this national character, which has already passed the Senate twice and has passed the House once. The people of New England, without exception, are more interested in this legislation than in any pending in this Congress. It does not affect directly the State of Massachusetts, because by no possibility could any land under the provisions of this bill be bought in Massachusetts; but it does indirectly affect the State by affecting the flow of the streams on which are located almost hundreds of factories which furnish employment for our people, and it is for that reason, as well as for the other benefits which the bill offers, that I advocate this legislation; and to prevent this legislation by committee action, in my judgment, would be resented by the people of Massachusetts.

The CHAIRMAN. Let me ask you. Suppose that a majority of the members of the committee should be opposed to the bill? I do not know at all how that is. I only make that supposition for the reason that there are seven new members on this committee instead of four, as Mr. Dawe thought. But suppose a majority of the members are opposed to the legislation, would you have them, notwithstanding, bring out a favorable report?

Mr. WEEKS. Mr. Chairman, I want to answer that question from my own experience. I am not necessarily an example for any member of this committee—I am aware of that—but last year there was an important bill pending before a committee of which I was a member, the Committee on Banking and Currency, known as the “Fowler bill.” I was opposed to some of the provisions in that bill as the bill was drawn, and I should have voted against it, but there was so much good in the bill that I was one of those who voted to report it out of the committee, believing that it was entitled to public discussion and consideration, although I announced at the time that I should vote against the bill, unless it was amended, when it came up for action in the House. I think the members of this committee should consider this legislation in the same spirit.

The CHAIRMAN. This is a point of parliamentary inquiry. Does a committee ever report a bill and put it upon the calendar with an unfavorable recommendation?

Mr. WEEKS. I do not recall that that has been done, but I see no reason why it should not be done; and I want to add, in answer to your previous question, that I have dissented from a proposition in the post-office appropriation bill, which I reported, as chairman of the committee, and announced to the committee that I should oppose the provision on the floor of the House.

The CHAIRMAN. It is common, of course, for a gentleman to oppose some provision of an important bill, but the bill is usually supposed to be reported by the majority of the committee and not by the minority.

Mr. WEEKS. This legislation, as I have said, is of more interest to the people of New England than any other legislation which is pending in Congress. I believe pretty nearly the same thing can be said of the people of the South; there is no reason why it should not be of similar interest to the people all over the country where there are navigable streams and where they may be affected by forestry, because this bill is as broad as the land; and when people understand it, as they do in New England, and as they do in the Appalachian Range, in the South, and when they know that they may derive some benefit from it, I believe that the pressure for this legislation will be as strong from other sections as it is from New England. This bill is moderate in its character, and in my judgment it will commence a policy which will be of great benefit to this country.

Now, Mr. Chairman, I want to add just one word more. This session of Congress is passing rapidly. We are all aware of the fact that we spent a great deal of time on this legislation last winter, reported the bill and passed it in the House without any ultimate result. We do not want to do that again. It will be a disappointment to its friends, and it is a waste of our time. I therefore ask that the committee consider this legislation promptly and either report the bill

out or fail to do so, so that we may devote our time to some other purpose than trying to get this bill through the House at the last hour of the session and thus fail to get ultimate legislation.

Mr. WEEKS. I am greatly obliged, speaking for the gentlemen who have addressed you, for the time you have given them, and I want to compliment the committee on its attendance. It is the largest committee attendance I have seen since I was a member of this committee.

The CHAIRMAN. Just a moment. We have discussed this matter so much that I am sure you understand my personal attitude on the matter.

Mr. WEEKS. Absolutely.

The CHAIRMAN. You know that I am just as much in favor of constructive legislation as you or our friend, Mr. Dawe, or anybody else can be; that I am just as anxious that the productivity of the soil should be perpetuated, and the industrial and commercial prosperity of the country should be promoted, as anybody can be. You know that I have felt that we should stop short of actual purchase of forest lands, believing that the end could be reached without such purchase. It was to carry out that idea that in the first session, I believe, of the Sixtieth Congress, in cooperation with members of this committee, I brought out and presented to the House, and there was passed, a bill providing for the widest and most liberal cooperation on the part of the Government with States or corporations or private individuals, for the protection of forests from fire and for the reforestation of deforested lands, and the maintenance of existing forests. You have embodied essentially the features of that bill in the first three sections of your bill. Would you feel very much disappointed if this committee should report a bill embodying practically those three sections, and omitting the purchase sections?

Mr. WEEKS. Absolutely; absolutely. I think, while it would not be entirely a waste of time, because all its provisions are valuable, and especially the section that provides for protection from fire, it would not satisfy the thousands and hundreds of thousands of people who are interested in this legislation—people who never owned a tree and who do not live near forests. My mail, Mr. Chairman, amounts to 500 or 600 letters a day, and even with that large mail a large percentage of it is made up of letters that come from people all over the country urging action on this bill. I have half a dozen to-day from as many States asking that this legislation be pushed. It is not a local sentiment or a local desire. It is a widespread desire for action; and further I want to call your attention, Mr. Chairman, to the fact that President Roosevelt, in every one of his annual messages during his last term, advocated this legislation; that President Taft advocated it in his message to Congress in December, and it is one of the few practical measures now before Congress designed to carry out the conservation policy which has been advocated at meetings of the governors of the States, and at meetings of other large bodies of representative citizens. It is a measure that will in some way respond to a sentiment that is country-wide, and therefore I think the bill ought to be reported out substantially as presented.

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this legislation
in my judgment.

Mr. LAMB. If such a bill as was reported from this committee at one time is reported, would not I be justified in characterizing it as I did that bill, as a flimflam bill?

Mr. WEEKS. Well, Captain, I do not like to indulge in such language, but I am perfectly willing that you should use any language you desire in characterizing it.

The CHAIRMAN. He would hardly be expected to acknowledge that he had incorporated three or four sections of flimflam.

Mr. BEALL. I understand that this carries an appropriation of about \$9,000,000.

Mr. WEEKS. About \$9,000,000.

Mr. BEALL. I understand from your remarks that you construe this to be simply the beginning of a policy to be followed by the Government in the years to come?

Mr. WEEKS. If after five years we find that this policy is advantageous, as I believe we will, and that it is a profitable policy for the Government to follow in itself, in addition to the value it will have as a conservative of water powers and navigable streams—if that develops—I hope it will be a continued policy. If, on the contrary, those conditions do not prevail, at the end of five years the law will terminate, as the bill is presented; and I hope you will be here willing and ready to vote for its continuance.

Mr. LAMB. I do not think you gave it life long enough. I do not think you gave it long enough for it to be tried.

Mr. WEEKS. Well, let our successors decide that.

Mr. BEALL. You appreciate that when a policy is once undertaken, it is very rarely the case that it is abandoned; that it is a difficult matter to abandon it?

Mr. WEEKS. Any governmental policy undertaken which involves the employment of a large amount of labor is very seldom abandoned; but a governmental policy which does not involve the employment of much labor may be and has been abandoned.

Mr. BEALL. Suppose the policy is carried on, can you give the committee any estimate as to the probable amount of cost that will be involved in carrying the policy to the extent that you believe it should be carried to?

Mr. WEEKS. No estimate that would be worth a cent. No; I can not.

Mr. BEALL. Do you think it would be less than \$50,000,000?

Mr. WEEKS. I should think not, eventually.

Mr. BEALL. Or less than \$100,000,000?

Mr. WEEKS. I presume not.

Mr. BEALL. Less than \$500,000,000?

Mr. WEEKS. Possibly. These are getting to be big figures, and I do not know.

Mr. BEALL. Let me ask you this question. This matter has been before Congress for a number of years?

Mr. WEEKS. Yes.

Mr. BEALL. Is it not true that the ground upon which it has been advocated has been almost entirely shifted in the last five or six years?

Mr. WEEKS. It is true that the fundamental reason assigned for the legislation has been shifted. The real reason behind the legislation has not shifted at all.

Mr. BEALL. Is it not true now that the real reason behind this attempted legislation is an effort to conserve the forests?

Mr. WEEKS. I think that is it.

Mr. BEALL. Is not that the main reason?

Mr. WEEKS. I think that is one of the main reasons.

Mr. BEALL. And the reason that is not brought out here prominently to the front now is because it has been decided and declared by the highest judicial committee of Congress that it was not a purpose that could be subserved by federal legislation?

Mr. WEEKS. I never attempt to deceive anybody as to my reasons for urging this bill personally. I do not deny that for a moment—that forestry is one of the main reasons for promoting this legislation. We have to find a constitutional way to do some things. The constitutional way in this case has necessitated connecting forestry with navigation, and I do not deny that the enactment of this bill will be of large value in the conservation of water powers and in the flow of streams, and to a considerable extent in preserving the navigation of streams. The development of a forestry policy is one of the large elements in my mind for urging it.

Mr. BEALL. And is not that largely responsible for the demand that comes from your section of the country, as well as from the South, in your judgment, for this legislation?

Mr. WEEKS. It has not a thing in the world to do with the demand from my section of the country. No river or stream on which you could run a flatboat rises in the State of Massachusetts. There never will be a cent of this money spent in Massachusetts, except the proportional part of the fire fund which may be allotted to that State. The only way it affects the State that I represent in part is because of the fact that it will preserve water power and an equitable flow of streams.

Mr. BEALL. So far as preserving the water power is concerned, you are willing to admit that Congress has no right to enact this legislation for that purpose?

Mr. WEEKS. I am told that is so. I do not agree.

Mr. BEALL. You do not admit that?

Mr. WEEKS. No.

Mr. BEALL. That was the decision of the Judiciary Committee of the House.

Mr. WEEKS. However, I am not splitting hairs on that point.

Mr. BEALL. Is it not true—you have been very frank—that this navigation plea is simply a peg upon which it is sought to hang this measure because that is a function that it has been decided that Congress could exercise?

Mr. WEEKS. I will be equally frank in saying that that is the constitutional method of obtaining this legislation. It will affect navigation; it will affect the navigability of streams; it will prevent the necessity of dredging and doing work which we are doing by means of our river and harbor bill in navigable streams; and that is one of the elements that goes to make up the reason for this legislation; that is, the constitutional reason. But if it does other things at the same time, that is no argument against the legislation. That is, if that were not the main reason, that is no argument against it. That is the constitutional reason for making this provision; and therefore, as it does other things at the same time, there is all the more reason for

favoring the legislation than there would be if it hung on that one point.

Mr. BEALL. Are you willing to admit that the constitutional reason, then, for urging this legislation is the benefit to the navigability of streams?

Mr. WEEKS. Yes.

Mr. BEALL. And that the main reason for urging it is some other purpose?

Mr. WEEKS. I said one of the large reasons; I did not even say "main reason." I said one of the large reasons for urging it was another consideration.

Mr. LEVER. Nobody has ever denied that.

Mr. WEEKS. Nobody has ever denied that.

The CHAIRMAN. Has any other member of the committee any further questions to ask Mr. Weeks or any of the other gentlemen who have appeared before the committee?

Mr. COCKS. I would like to ask some questions relative to the reservoir proposition of the gentleman from North Carolina who was on the stand, who spent several years in the survey.

ADDITIONAL STATEMENT OF MR. L. C. GLENN.

Mr. COCKS. I would like to get your opinion of the value of reservoirs at the headwaters of any of the streams that are to be taken care of in this bill?

Mr. GLENN. My personal opinion of the reservoir scheme is that it would not be a success because of this one simple fact, apart from whatever else was brought out this afternoon, because under present conditions the enormous amount of material going down those streams from the denuded hillsides would very soon fill those reservoirs up; they would become ineffective.

Mr. COCKS. There would be many places where that would not be. Take a stream like that, for instance [indicating transparency in a window of the committee room].

Mr. GLENN. A reservoir there would be scarcely necessary, because that is in a forested region where floods are not destructive.

Mr. COCKS. But would it not hold back a large body of water that could be released later to maintain the stream flow?

Mr. GLENN. That would hold back water that could be used to maintain the stream flow, and in that particular case there practically would be no objection to a reservoir. That is one of the few cases where the stream banks are not lined with railways and where there is not a considerable area of the most valuable farming lands in the region, or where perhaps the towns are situated.

Mr. COCKS. Are we to understand that the headwaters of most of these streams are traversed with railroads and dotted with towns?

Mr. GLENN. The larger ones are—the ones on which the reservoirs would be most effective. I think the reservoir proposition would not be practicable, in short. It is shown by the results of the power dams on these streams in upper South Carolina, and in upper Georgia, too, there are a good many instances of water powers on these streams that in the course of ten or fifteen years have filled full of sand and clay. I remember one near Anderson, S. C., that with a head of 37 feet at the dam and a length of some 12 miles, filled full

entirely of sand and clay in about ten or twelve years. It was estimated that it would take \$4,000,000 to dredge it out.

Mr. COCKS. Have you ever seen any such dam in a forested area which filled up?

Mr. GLENN. I have not seen any such dam in a forested area.

Mr. COCKS. There is no such dam? You do not know of any?

Mr. GLENN. No, sir.

Mr. COCKS. Could not a dam be so constructed, by having openings in the lower part of it, as to allow the stream to run through at times and wash out the silt?

Mr. GLENN. Our southern mill engineers have abandoned all attempts of that kind, and one of the mill engineers in the South, who has had the largest experience on that line, told me a few years ago, in discussing the matter with him, that he counted on nothing but the stream flow; he did not, in other words, count the storage capacity of dams.

Mr. COCKS. Why was it impracticable to have openings at the bottom to wash it free of silt?

Mr. GLENN. I do not know that I can answer reliably on that. I would suggest, however, that when the dam has been filled with silt it packs itself in so that it would not wash itself out, even if you opened the dam.

Mr. COCKS. It would not be necessary to keep it closed until the dam had entirely filled with silt.

Mr. GLENN. No; that would not be necessary. But I doubt if the use of flood gates at the base of the dam there is sufficient to keep that clean.

Mr. COCKS. Have there been such dams constructed with gates at the bottom?

Mr. GLENN. Yes.

Mr. COCKS. With large openings there?

Mr. GLENN. The cotton mills that have been developed on large water powers have openings at the bottom of their dam. They have, in addition, centrifugal dredges which operate to cut up and loosen up the material and aid in carrying it out.

Mr. COCKS. Were those large orifices, so that the water could pass out readily?

Mr. GLENN. I do not know; but the dams were constructed for the purpose, and they have failed, and the engineers in building new dams have abandoned all attempts along that line to keep the dams clear.

Mr. COCKS. My purpose in answering that question was this. I have noted that the great dam at Assouan, on the Nile, has forty orifices such as I speak of. Of course, the Nile there is checked, not during the flood, but after the crest of the flood is past; but the principle would be the same. I know that engineers predicted that that dam would not stand with those numerous openings, but the dam has been constructed and has stood for six or eight years.

Mr. GLENN. In my country they have often found that a mill pond fills up, and they never can successfully clear that out. They have cut the entire dam out, perhaps, but the water just cuts down a narrow channel, and it does not clear the pond; it just makes a narrow channel through this silt.

Mr. COCKS. I can understand that when there was a great semi-circular pond it would do that, but I should think it would be different where there was a gorge.

Mr. GLENN. You do not hold any water in a narrow gorge.

Mr. COCKS. You could back it up.

Mr. GLENN. Yes, but you would have to back it up a great many miles in order to get a pond that amounted to anything in a stream of that sort.

Mr. COCKS. Suppose we started on this proposition, would it not be years before we could stop this erosion?

Mr. GLENN. I do not know whether five years would be sufficient or not, but in a few years, I think, we would get results that would either justify us in continuing it, or show us that we must stop it. And in regard to the expense, one of the members of the committee was asking a moment ago about that; I do not imagine that the Treasury would be called on to pay, say, at the rate of \$2,000,000 a year, any such length of time as would take out of the Treasury \$50,000,000 or \$100,000,000. Long before such a sum as that would be taken from the Treasury we would begin to get returns from the forest lands by the sale of the forest products—the timber—and it would not be very many years before the scheme would be self-supporting, and the same history that has characterized such legislation in Europe would be repeated here, it would become a source of positive revenue to the Government, and it would be, in other words, a money-making investment—better than selling 2 per cent bonds, for instance.

Mr. COCKS. Your idea would be that it could not be made a profitable investment by the utilization of the water power that these dams afford?

Mr. GLENN. I should not include dams in my scheme at all.

Mr. COCKS. I understand; but as a proposition to make it self-supporting?

Mr. GLENN. I should not put up dams as a portion of it at all. Let the private interests down the stream that is regulated build the dams and take care of that phase of it. There are plenty of men ready to do it in the South.

Mr. COCKS. How about the reclamation projects? Will not those dams fill up in the same way?

Mr. GLENN. I am not personally familiar with them, but I think some of them will, and I think they are trying to provide against it. Whether they are going to be able to do it effectively or not time alone can tell. I think it is too soon to pronounce any opinion.

The CHAIRMAN. It is true that when America was discovered there was a bar at the mouth of every river emptying into the sea?

Mr. GLENN. I suspect so, in most cases; but that is far afield from this whole question.

The CHAIRMAN. It leads to this question. Take the mouth of the Columbia River, for instance. Does the fact that a bar exists there lead to the conclusion that if a dam had been built up at the headwaters of that stream the sand and silt, which in the absence of such a dam has drifted out to sea, would have been held behind that dam and filled up that reservoir?

Mr. GLENN. No, sir; I think that does not follow at all, because of this fact, that the greater amount of the sand at the mouth of the

Columbia came from wave action along the shore. If you take our North Carolina streams that flow into Albemarle Sound and Pamlico Sound, you will find off the mouths of those sounds—that is, where they would mouth if they were open freely to the ocean—there is a bar, now known as a “sand bank,” that effectually shuts that in. That came about through sand carried by the waves along the shore and built up by the action of the sea. Many rivers that come down from this Piedmont country do not bring any of this material. If they did bring it, it would settle in these great settling basins, the sounds. It would never get out of there. Those bars are due to the action of the sea, and have not anything in the world to do, practically, with this problem; and, while in some cases bars off rivers where they enter directly the sea do come from such materials—the Connecticut, I think, now brings down that granitic material that is accumulating in its mouth to-day—the bars in many cases in past ages were due not to the action of the river, but to the action of the sea.

The CHAIRMAN. Take the case of the Connecticut River, about which you just spoke. Would not the construction of a dam near the headwaters of that stream have presented an obstruction to this sand which would eventually have filled up the pond?

Mr. GLENN. I imagine it would in time; yes, sir. I have very little faith in the reservoir, Mr. Chairman.

Mr. HANNA. Are there not dams all along down the Connecticut River?

Mr. WEEKS. Yes; there are. At a half dozen different places.

Mr. PLUMLEY. There are three natural reservoirs at the head of the Connecticut River, are there not?

Mr. GLENN. I am not familiar with that at all.

The CHAIRMAN. You know that one of the three great policies of the present administration, or at least a policy which has been strongly advocated in many quarters, has been to make a charge on behalf of the Federal Government for the water power arising from streams which flow from or through national reserves.

Mr. GLENN. Yes.

The CHAIRMAN. I do not know whether that phase of the question has ever been considered by the business men of the South, and whether they have looked forward to the possibility of the Federal Government, in the event of its purchasing and protecting these watersheds, making a charge for the use of water power which was preserved thereby.

Mr. GLENN. I do not think that has been considered. I have not heard it spoken of at all.

The CHAIRMAN. Do you think that would be an unreasonable charge?

Mr. GLENN. I do not. I think it would be a reasonable charge, and I think further the mill men of the South would not object to it. Take, for instance, the Southern Power Company, which to-day is developing and delivering 125,000 or 150,000 horsepower over a radius of a couple of hundred miles there. They would be only too glad to see the Government take hold of the headwaters of the streams on which their dams are situated and regulate them vastly to their benefit, and they would be quite willing to pay a reasonable charge

for that benefit. They are business men. They would be willing to pay for a substantial benefit which they would derive from that.

The CHAIRMAN. Would they be willing to transfer the right to the Government to do that?

Mr. GLENN. I do not know. You will have to ask their business officers.

Mr. LAMB. You do not claim that the Government can control the waters above navigation, do you?

Mr. GLENN. That they can control the waters above the head of navigation?

Mr. LAMB. Does not that belong to the States?

Mr. GLENN. I am not a lawyer.

The CHAIRMAN. From your point of view, it would be hopeless to erect a dam on any stream, because it would fill up?

Mr. GLENN. It depends entirely on the amount of erosion that is going on. If the stream is able to handle the amount of eroded material that is carried into it by its tributaries, it would be all right.

The CHAIRMAN. But at the dam it would give up most of its mud?

Mr. GLENN. It will give up the greater part of it.

Mr. WEEKS. In the floods on the Connecticut the dams do not check its flow at all.

Mr. GLENN. Low dams do not check the flow at all. I examined the Monongahela River in connection with the flood of 1897. There are a lot of locks and dams there. The dams make slack water, but the slack-water prism—the cross section, in other words—is so very slight as compared with the normal river flow there that the material is kept moving, and that largely depends on the size of the dam.

Mr. COCKS. Why should not that sort of dam be put in lots of our streams, just as we are intending to put thirty or forty dams in the Ohio River, if the scheme is ever completely carried out?

Mr. GLENN. There will be very little capacity for storage to that sort of dam.

Mr. COCKS. They will hold back the water and make a reservoir.

Mr. GLENN. Those dams will not hold back any appreciable amount of water. Those Monongahela dams are each 3 or 4 feet high, or something of the sort, and there is a current there all the time. These storage reservoirs would have to be many feet high and cover bottom lands on either side so as to make a large storage volume. Those Monongahela dams have practically no storage volume.

The CHAIRMAN. Are there any further questions?

Mr. PLUMLEY. Have you any data in hand to show how long it would take approximately for these trees that are in the deforested region to become of some commercial value?

Mr. GLENN. Merchantable value?

Mr. PLUMLEY. Yes.

Mr. GLENN. I am hardly enough of a forester for that. I am primarily a geologist. Mr. Roth can answer that. Mr. Roth, how long would it take the young timber on this area to become large enough to be of commercial value? I believe that is the question?

Mr. PLUMLEY. Yes; so that it would begin to return to the Government a fund for its own maintenance.

ADDITIONAL STATEMENT OF PROF. FILIBERT ROTH.

Professor ROTH. That question, of course, is one that can be answered in various ways. It is a good deal like taking over a farm. I can take a farm—whether it is good or run down makes no difference—and I can run that farm intensively and put in many improvements or I can run it extensively and put little or nothing into it and take out everything possible. We have the good farmer and the poor farmer. We have the poor farmer literally speaking as well as figuratively speaking, and we have the good farmer who has lots of money. Take this Forestry Service. You have a good illustration in the forestry service that you have already established in the West. There is a large body of forest surveyed, and you are right now on the brink of making those forests self-supporting and having them give to the West, for instance, 25 per cent of the increment.

Now, in the same way, you can take those mountains right there and turn them over to men who will simply give them protection, and you can make that protection off of that land now, you need not wait a day; or you can do something to it, make considerable improvement and put in a little money for five or ten years, and then have something which is self-supporting. Now, take a case in point. Here is Mr. Ayers, who takes care of a piece of cut-over land which belongs to Dartmouth College. He can tell you how it is done, and how, if you have not got the money to do more with, you can make that thing self-supporting from the start. I myself took from the forestry service in the State of Michigan some cut-over land on which there was comparatively little timber. We did not go into it in an expensive way. In other words, we cut our plan according to the cloth. You can do precisely the same thing as to these forest reserves, if you create them. You can make them self-supporting from the start or you can improve them and do much better with them. On this idea of how much you can do with the forest lands like this, let me illustrate by the example of the Black Forest in Germany. The Grand Duchy of Baden owns the Black Forest, and they are making more money per acre per year off those mountain forest lands than we are on farm lands in the State of Michigan.

Mr. COCKS. What is the annual return?

Professor ROTH. The last few years the Grand Duchy of Baden made \$5 an acre, net. Other German States do the same thing, and a great number of their lands are nonagricultural lands. As you can readily see, if they were agricultural lands they would not remain in forests with an extensive population such as there is in Germany.

Mr. COCKS. I thought the question was, how soon could we expect to receive returns from the reforested area when trees were planted there?

Professor ROTH. Oh, if you plant the trees, that is a totally different problem. Your income is not from the reforested area.

Mr. COCKS. We are speaking of the young trees.

Professor ROTH. You could plant locusts and get something out of them in five or ten years.

Mr. COCKS. What good is a locust in five years?

Professor ROTH. You can get fence posts out of them in five or ten years.

Mr. COCKS. In five years?

Professor ROTH. No sir; in ten years.

Mr. COCKS. They would not be worth much.

Professor ROTH. No, sir.

Mr. PLUMLEY. That is one thing that I know something about. I can answer my own questions on that.

Mr. COCKS. What do you know about it? I would be glad to have you tell us.

Mr. PLUMLEY. A little while before I came down here I visited the Billings estate in Woodstock, Vt., where Mr. Aiken has been the manager for thirty years, and thirty years ago he began to set out the Norway spruce and the hard pine on soil useless for anything else—light sandy soil. He has begun cutting wood from those trees, and he showed me a section of a Norway spruce that was more than two feet in diameter at the proper cutting distance from the ground, and he has set out 750 Norway spruce and hard pine, all the way from seedlings of last year to those of thirty years' growth, so that right on that farm you can study the whole problem and see it in its actual existence. At twenty years' growth a Norway spruce or hard pine is worth \$2 a tree on the stump on sandy soil. It is not then profitable to cut, but it is worth \$2. At thirty years it is worth \$5 on the stump, and is marketable at what would be good commercial usage to-day.

Mr. COCKS. For wood pulp?

Mr. PLUMLEY. For wood pulp. Now, in planting his forests he plants the trees 8 feet apart and plants midway, in part of it—that is a sort of an experiment—a locust tree, the theory being that the locust, being of that class of tree that draws to it a supply of nutrition, will also yield it out through its nodules or roots for the more rapid growth of the pine tree. When it reaches the age of 8 years he cuts that for the purpose that Professor Roth has spoken of, for fence posts, which are not laughable material, but are absolutely valuable at 20 cents every 6 feet; and at that time there are two or three good fence posts on every locust; and he grows his forest of pine trees and of spruce faster than he would have grown it without the locust, and that begins to bring in his return, so that in eight years he gets in his first return, which pays very handsomely, and the setting out of it is comparatively a very cheap process; it is one stroke of a pickax and one stamp of the foot. That is all there is to planting it.

The CHAIRMAN. This is very interesting, but the fact that in the national forests we now have about 200,000,000 acres of virgin forests which have not been able to pay more than half of their running expenses lends color, I think, to the suggestion that the self-supporting feature of this policy ought not to be emphasized.

Mr. CURRIER. We have been told that they could make the gross receipts of the Forest Service anything they pleased, and that they were not cutting one-twentieth of what they could cut without injury to the reserves.

The CHAIRMAN. That is true, but it also remains to be observed that under this bill the merchantable timber, so far as there is any, may be reserved by the owner, and I take it that the commission acting for the Government would rather allow the owner to reserve the timber than to pay \$40 or \$60 an acre for the land with the timber on it.

Mr. CURRIER. If the land in the White Mountain region had been purchased twenty years ago at the prices then prevailing, it would have been paying a net revenue to this Government of 20 per cent a year, and it is going to advance in the next thirty years just as much.

Mr. LAMB. Since this is a personal experience meeting—and I hope my friend from New York (Mr. Cocks) will not go away, because this is in direct answer to his question—when I was 12 years old I helped the negroes to plant corn on a field of my father's of 50 or 60 acres. A year or two after that he turned that field out for some purpose. I went into the war, and when I came back I found that field growing up with timber, and when it was 30 years old I cut that wood, 30 cords to the acre, and shipped it to the Yankees in the North and got \$10 a cord, and got back some of the money for the mules they took. [Laughter.]

STATEMENT OF HON. FRANK E. GUERNSEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MAINE.

Mr. GUERNSEY. I would like to speak to the committee just a moment. I do not want to occupy your time, but in connection with this matter, in which I am greatly interested, I would say that I introduced House bill 21589, which is more of an amendment to the bill which you have been discussing than otherwise, as it is a reproduction of Mr. Weeks's bill, and I wanted to present it simply to get before you two propositions, possibly to be considered as amendments to his bill more than for any other purpose.

As I understand, the object of the bill is for the National Government to acquire large areas in the States. That being so, it seemed to me that the purpose of the bill being to cooperate with the States in protection of the navigable rivers, it would be well to have an amendment to the bill providing that the States might have the right under certain restrictions which are contained in the provisions which I have introduced, to enter the national reserves in inland waters for the purpose of creating storage water at points where it was desirable for them to create it, and at the same time exercise complete control, for the benefit of the citizens of those States, over any water power that might arise. I know that in Maine, if large areas were acquired there, the result would be that every valuable storage point for water would be covered by the national reserve, and not only for storage purposes, but it might be utilized for various purposes of the State; but also there would be valuable water powers there, and it would seem that it would be good policy to give the States the right, if they saw fit, to enter those reserves and exercise control over the storages and also over the power. Necessarily, the States under the common law and under the state laws do control the rivers above the navigable portions, but in order to exercise any rights over the powers they have got to be in the nature of riparian owners, and the National Government would control the powers.

As to the proposition, further than that, it would also appeal to me, coming from Maine, where I have witnessed the value of the preservation of game, as being a good thing to give the States the right to control the national reserves within their borders so far as all game is con-

cerned; and in that event the measure I have introduced covers those provisions, and you have it before you.

I have also witnessed the value of a storage dam. Our rivers are continually creating storage dams, which regulate and increase the minimum flow of the river and accomplish the very purpose that this bill has in view, and if the States were allowed to exercise a right to create those storages and, possibly, create storage dams, they would aid, under the purposes of this bill, in connection with the forests, in regulating the flow of the streams.

In connection with the question as to how far the forests do aid in increasing the minimum flow of the streams, I recall, in my own county, the instance of the Piscataquis River, which runs westward, and which has been cleared up by farms on both sides. There is another river that runs north of it, parallel with it, extending westwardly, and through an entirely forested country. My portion of the Piscataquis valley is on the border of the great Maine forest. The Piscataquis River drains itself amazingly fast, because the slopes are not covered with forest, and the water power there is dependent on auxiliary steam power, whereas the other river that I mentioned, the valley of which is protected entirely by forest, is, for its size, the most constant water-power system in Maine, and the mill privileges on that stream do not fail for lack of power for weeks, and sometimes months, after the Piscataquis, in the same locality and under the same conditions of rainfall, fails.

The CHAIRMAN. If there is nothing further, the committee will go into executive session for a few minutes.

(At 5 o'clock p. m. the committee went into executive session.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES.

Washington, D. C., Tuesday, March 1, 1910.

The committee met this day at 10.30 o'clock a. m., Hon. Charles M. Scott (chairman) presiding.

The CHAIRMAN. The committee will please come to order. In accordance with the order made by the committee at its last meeting, we are met this morning to resume consideration of the Weeks bill, relating to the purchase of forest lands in the White Mountains and the Appalachians. It occurred to some members of the committee that army engineers who have been required in the course of their duty to study the subject of river control might possibly be able to give us some information on this subject, and Major Cavanaugh, of the office of the Chief of Engineers, has been kind enough to respond to the invitation of the committee, and I will ask him if he will submit to a few questions.

Major Cavanaugh, will you state to the reporter, in order that the record may be complete, what your official rank is, and what your engineering experience has been?

**STATEMENT OF MAJ. J. B. CAVANAUGH, U. S. ARMY, ASSISTANT
TO CHIEF OF ENGINEERS.**

Major CAVANAUGH. My name is Maj. J. B. Cavanaugh, Corps of Engineers; Assistant Chief of Engineers, Washington, D. C.

The experience which is pertinent to the matter in hand consists of practically eight years in connection with rivers in Mississippi, Georgia, and Alabama.

The CHAIRMAN. Upon what rivers have you been particularly engaged?

Major CAVANAUGH. The Chattahoochee, Flint, Alabama, the Mobile River system, and some of the smaller rivers in Mississippi.

The CHAIRMAN. All of those streams, I believe, have their sources in the Appalachian Mountains?

Major CAVANAUGH. The Alabama system and the Chattahoochee system have their sources in the Appalachian Mountains.

The CHAIRMAN. Your work as an engineer has been directed, I presume, to the maintenance of navigation on those streams?

Major CAVANAUGH. Yes, sir.

The CHAIRMAN. In the course of that work have you had occasion to study the influence which the character of the watersheds has possessed in respect to the question as to whether it is forested or otherwise?

Major CAVANAUGH. In connection with the Chattahoochee River particularly, the changes in the watershed have led to the appearance of much more sand and gravel in the river; but these changes are mostly limited to the fields along the banks of the river, in the lower reaches which are under cultivation.

The CHAIRMAN. What proportion of the sand and detritus which obstruct navigation would you say comes from the upper region of the stream, above the navigable point?

Major CAVANAUGH. I might answer that by stating that most of the material with which we have difficulty comes from the farm lands which border the streams on either side, and it has never occurred to us that our troubles come from the headwaters or the sources, since it was perfectly evident that we had a satisfactory explanation of such troubles in the detritus from the fields immediately adjacent.

The CHAIRMAN. Your work has been directed, then, chiefly to protecting the banks of the river as they are and to taking care of the wash that has come in from the fields lying alongside of the navigable reaches of the stream?

Major CAVANAUGH. We have attempted to protect the banks and to keep the material moving, so as to pass it out of the mouth of the stream practically and to store it away in pools and in the wide reaches of the river within retaining works.

The CHAIRMAN. If the choice were given you of retaining the upper slopes of the mountains in forests or in having the lower slopes forested, the purpose being to maintain the navigability of the stream, which would you regard as the more important?

Major CAVANAUGH. I should prefer the protection close to the stream rather than distant from where I had to work.

The CHAIRMAN. Has your work in any of these streams extended over a period of time during which there has been a material change in the watershed, as to its forestation or otherwise?

Major CAVANAUGH. I believe not. The changes do not occur as rapidly as that. In any of the streams with which I have been connected there has been practically no change in the character of the watershed in the limited period during which I have been connected with it.

The CHAIRMAN. Have you ever heard, or do you know, of a river engineer who advocates the forestation policy as a direct and practical method of governing the regimen of navigable rivers?

Major CAVANAUGH. There may be such, but I do not believe I know of them.

The CHAIRMAN. Are you familiar with Colonel Chittenden's report on that subject?

Major CAVANAUGH. I have read it; yes, sir.

The CHAIRMAN. From the comments you have heard upon it, do you think that the sentiment of army engineers was favorable or unfavorable to the contention he makes?

Major CAVANAUGH. I think most engineers are rather in favor of the general conclusions of Colonel Chittenden. I would not confine that to army engineers alone.

The CHAIRMAN. Are you familiar with the report recently published from this committee by Prof. Willis L. Moore?

Major CAVANAUGH. Simply as to the general conclusions. I have not carefully examined the report yet.

The CHAIRMAN. Have any members of the committee any questions to ask Major Cavanaugh?

Major CAVANAUGH. I would like, before you go any further, to add, really as a preface to all my remarks, that I am thoroughly in sympathy with the movement for reforestation and for the preservation of the forests, and I think the same is true of every other army engineer; and if we are unable to agree with some of the conclusions or some of the opinions which have been published we more or less regret that we are not able to fall in with them, and it is not the desirability of forestation, but the effect, that we have to question.

The CHAIRMAN. I think I should state, in fairness to Major Cavanaugh, and also to Captain Johnston, who is to follow, that they both appear reluctantly, not wishing even to seem to be placed in the position of opposition to another branch of the Government, but coming only because they felt it to be their duty to give such information to a committee of Congress considering an important measure as their experience has afforded them.

Major CAVANAUGH. I might also say that we have certain documents and certain expressions of opinion from various engineers which Captain Johnston will submit, which show the opinions of others and the results of actual observations.

The CHAIRMAN. Yes.

Mr. LEVER. Mr. Chairman, I hope the committee will not be bored by the questions I shall ask during this hearing, but if it is permissible at this point, I would like to ask Major Cavanaugh if he knows Major Raymond?

Major CAVANAUGH. Yes, sir.

Mr. LEVER. I would like to quote from the Report of the Chief of Engineers, 1891, from the report of Major Raymond, and ask Major

Cavanaugh if he has reached the conclusions there expressed. Major Raymond states:

CAUSES WHICH INCREASE THE DESTRUCTIVE EFFECT OF FLOODS.

Such causes may be considered under the three following heads:

- (1) Destruction of forests and cultivation of land.
- (2) Artificial constructions, such as bridges and dams.
- (3) Collection of logs, lumber, and ice in the stream and upon its banks.
- (1) The destruction of the forests from the mountain crests and slopes of a watershed is undoubtedly the principal cause of the increase of the average magnitude of floods. The evidence collected during the last twenty-five years establishing this conclusion is well-nigh overwhelming, and it is verified by repeated observations, not only in the mountainous countries of Europe, but also in our own land. By the removal of the forest from the mountain slopes the ground is robbed of its protecting covering of roots, moss, leaves, and porous soil, which forms the forest floor and serves as a natural storage reservoir, holding back the water of rainfall and melting snow and compelling it to descend slowly to the channels. By the subsequent cultivation of the lands ditches and drains are made to facilitate the more rapid discharge from the cultivated surfaces, until the rain rushes down the hillside in destructive torrents, gulling the ground and choking the minor lines of drainage with rocks, sand, and gravel, and hurrying into the recipient of the watershed volumes of water which before reached it in a comparatively quiet flow.

Colonel Torrelli affirms, as the result of careful observation, that four-fifths of the precipitation in forests is absorbed by the soil or detained by the surface of the ground, to be gradually given up in springs and gentle rills, and only one-fifth of the precipitation is delivered to the rivers rapidly enough to create floods. Upon the same slopes and surfaces denuded of their forests the proportions are reversed.

That the destruction of the forests in mountainous watersheds is followed by disastrous floods where previously such floods were unknown is not a matter of theory, opinion, or probability, but is a well-established physical fact.

What have you to say to that statement?

Major CAVANAUGH. What is the date of the report?

Mr. LEVER. This was in 1891.

Major CAVANAUGH. That is seventeen years ago.

Mr. McDERMOTT. Nineteen years ago.

Major CAVANAUGH. Yes; nineteen years ago. Nineteen from forty. Major Raymond was less than 25 years old when he wrote that report, and if you will notice, he is not giving the results of his own observations or conclusions, but is giving you practically the views of the gentleman whose name he quotes.

Mr. LEVER. I was very much struck by the fact that he was giving us the results of the observations of other folks, and not his own opinion. Does not that strike you in the report? That is an observation covering twenty-five years.

Major CAVANAUGH. This is one of those questions which people do not agree on, Mr. Lever, and all we can do is to give the opinions of various people, and you have to attach such weight to them as may be proper.

Mr. LEVER. Major Raymond was an army engineer?

Major CAVANAUGH. Yes.

Mr. LEVER. With the rank of major?

Major CAVANAUGH. Not then. He is a younger man than I am.

Mr. LEVER. It is quoted from Major Raymond in 1891.

Major CAVANAUGH. That is nineteen years ago. I think he is a younger man than I am. He was less than 25 years old then, and his experience was certainly limited.

Mr. LEVER. I quote here Appendix G, opinions of Major Raymond.

Major CAVANAUGH. Maybe that was his father.

Mr. LEVER. Maj. Charles W. Raymond.

Major CAVANAUGH. Yes; that is the older man.

Mr. LEVER. He was an army engineer at the time, and a very eminent army engineer?

Major CAVANAUGH. Yes; he was a very eminent army engineer.

Mr. LEVER. With the same rank that you hold?

Major CAVANAUGH. Yes.

Mr. LEVER. You do not agree with his conclusions?

Major CAVANAUGH. The results of our observations do not seem to tally with those.

Mr. LEVER. Your observations have only covered a period of eight years?

Major CAVANAUGH. I am not speaking of my own only. We will call attention to the reports when Captain Johnston gives you his data.

Mr. LEVER. Are you acquainted with the proceedings of the conference or congress of Milan in 1905?

Major CAVANAUGH. I am not fully acquainted with that. I am not a member of that association.

Mr. LEVER. You have read that report?

Major CAVANAUGH. Not that particular one.

Mr. LEVER. Let me read from the Tenth Congress of Milan in 1905, with the chairman's permission, the Permanent International Association of Navigation Congresses:

1. Opinions being unanimous upon the points that forests exert a beneficial influence—

(a) Upon the consolidation of sloping grounds, by preventing the disastrous washing off of materials to the bottom of the valley.

(b) Upon the formation and permanency of springs, at least in impermeable ground and on slopes.

(c) On the better régime of rivers, at least at the periods of their low water and ordinary flows.

Do you agree to these unanimous conclusions of this congress of navigation?

Major CAVANAUGH. The observations we have do not substantiate that.

Mr. LEVER. They do not agree?

Major CAVANAUGH. No, sir.

Mr. LEVER. So that the observations of the army engineers of this country disagree with all the army engineers of European countries?

Major CAVANAUGH. I think you will find that those conclusions have been somewhat modified in recent years.

Mr. LEVER. Since 1905? This report was made in 1905.

Mr. HOWELL. That is not the report of army engineers?

Mr. LEVER. It is commerce and navigation. Do you know whether or not these conclusions have been modified, and, if so, how?

Major CAVANAUGH. I think the simplest thing, Mr. Scott, would be to show you the data that we have. I really do not care to enter into a controversy on a matter of this sort.

The CHAIRMAN. I understand Captain Johnston is more familiar with those data than you are?

Major CAVANAUGH. Yes. He will present the data.

Mr. McLAUGHLIN. Major Cavanaugh, I understand you say your personal observation or your own work has not covered a time within which there has been any change of mountain slopes or the country through which the streams flow?

Major Cavanaugh. The longest period in connection with any single stream that I had was four years, and there was no marked change in the four years in any watershed, any that you could detect by observation.

Mr. McLAUGHLIN. You mean by that, that the condition was the same during your observation?

Major Cavanaugh. Practically so. That is, the only basis of comparison is by some period in the past with the present, and of the two, of course, you only have the present.

Mr. LEVER. Just one more question, Major Cavanaugh. What has been your observation as to the relative amount of erosion upon a steep slope denuded of its forests and practically a level surface of land?

Major Cavanaugh. There is no question of protection of slopes; that is, there is no question as to the effect of forests in the protection of the slopes. That is clearly recognized. That is one of the reasons why forests are valuable, that they prevent the destruction of land; and that is one of the primary objects of forestry in Europe, as in France, for example, it is to protect their property.

Mr. LEVER. It is to protect the steep slopes against erosion?

Major Cavanaugh. Yes.

Mr. LEVER. That is because on the steep slopes where there is erosion, I take it, the eroded surface is carried into the streams as silt, and to that extent it affects navigation?

Major Cavanaugh. It depends on where it will go.

Mr. LEVER. Where could it go?

Major Cavanaugh. It has a long way to go before it gets to the navigable part of the stream.

Mr. LEVER. How fast could it go?

Major Cavanaugh. We agree that it could go a few miles a year.

Mr. LEVER. Do you agree with Colonel Chittenden on this proposition, where he says, speaking of the Mississippi River and of the silt that is carried by it from the eastern slopes of the Rocky Mountains into the Gulf of Mexico, "it all comes from the uplands far and near, but principally from the more remote and hilly region?"

Major Cavanaugh. I do not think that that is entirely correct.

Mr. LEVER. You do not agree to that?

Major Cavanaugh. Not entirely.

Mr. LEVER. Of course, Colonel Chittenden is an army engineer, and a very eminent one?

Major Cavanaugh. Yes, sir.

Mr. LEVER. As a matter of fact, as the eroded surface gets into the channel of the stream, it must get an outlet somewhere, and it does get into the navigable portion of the river?

Major Cavanaugh. A very small portion. It is a question of degree, Mr. Lever; that is all.

Mr. LEVER. Major Chittenden is wrong in this proposition, in your judgment?

Major CAVANAUGH. It is true of the character of material to which he refers. You see it is not a rational thing to say that where a river is eroding its banks none of this material finds its way into the Gulf. In a broad general sense all the material in the valleys has come from the uplands through the ages; but our troubles are with material already there.

Mr. LEVER. I quote here from Major Suter. Do you know him?

Major CAVANAUGH. Colonel Suter?

Mr. LEVER. Yes; Colonel Suter. He says the influx of sand, speaking of the Mississippi River, is from above, and must first be stopped, agreeing with Colonel Chittenden that the greater portion of the silt that gets into the Mississippi River comes from the reaches above.

Major CAVANAUGH. But, Mr. Lever, have you ever considered how to stop it above?

Mr. LEVER. That is the point we are trying to reach in this bill.

Major CAVANAUGH. The idea that you will stop it with forests is the point at issue, and the point that you can not stop it with forests is, I think, clearly conceded; and if it was a question of stopping, if we had the problem of stopping it, we certainly would not stop it with forests.

Mr. LEVER. How would you stop it, Major?

Major CAVANAUGH. With clover or other grasses. It is much cheaper, quicker, and more efficient than forests. If we thought it proper and advisable as an economic thing to do——

Mr. LEVER. Major, don't you think it would be a very good policy for the Government to inaugurate in aid of the navigable streams, to stop all the erosion of the hillsides which brings silt and chokes up navigation?

Major CAVANAUGH. It is simply a question of cost, Mr. Lever.

Mr. LEVER. But you think it would be advisable if we had the money to do it with?

Major CAVANAUGH. The tendency, of course, is there. If we can fix slopes throughout the stream and fix the banks, by that means you would eventually get a remedy, certainly. But you must also prevent the soil from washing from the farms alongside the streams, and that would be a solution of the most important difficulty.

Mr. LEVER. But you do admit, Major Cavanaugh, that the forests now on the slopes of the headwaters of navigable streams have a beneficial influence at this very moment in preventing the erosion which goes into the navigable streams? You admit that?

Major CAVANAUGH. Yes; certainly.

Mr. LEVER. The only difference between you and me is a difference of policy. You would plant these hillsides out in clover, and I would cover the present poorer soil on the mountain slopes with forests.

Major CAVANAUGH. Suppose you cut them off. You would not need to have anything to do with them except leaving them alone. In other words, the covering of forests is one character of covering, and when removed it is in most cases soon replaced by another character of covering—underbrush, weeds, or growth of another character.

Mr. CHAIRMAN. So far as the erosion of the slopes is concerned, has it been your observation in the Appalachians that the destruction of the forests is immediately and necessarily followed by the washing away of the soil?

Major CAVANAUGH. It simply depends on the character of the particular slope or particular area that is deforested. In the greater part of the Appalachians I should say this does not follow.

The CHAIRMAN. Does it or does it not follow the ordinary lumbering operations?

Major CAVANAUGH. It does not; no, sir.

The CHAIRMAN. Have you observed to what extent abandoned farms—

Major CAVANAUGH. Understand me exactly. This is getting a little beyond my personal observation. I make no claims and have not made any claims, to being an expert in this forestry matter. We have not felt that the investigations we have made have shown any results that would require us to resort to that method of spending our improvement money, and I have too many other things to do to enter into controversies, and I simply came here to give you references to certain data that we have in the office which bear on this question, and not to indulge in any controversy.

The CHAIRMAN. I think your wishes will be gratified in that respect.

Mr. LEVER. You stated a moment ago that your observations in the Southern Appalachians had not been such as to warrant you in any definite conclusion as to the deforestation and erosion going on in the Southern Appalachians at this time?

Major CAVANAUGH. I certainly have not made any special investigation. I might say I have seen very few cases where extensive erosion has taken place, due to deforestation, and in the section where I was working, in nearly all cases after you take off the forests, if you will let the land alone it will protect itself by a second growth of some character; the brush or other growth will start up, and you will have a cover just as effective as the original covering. That, I understand, is not true on certain of the steeper slopes.

The CHAIRMAN. We will not detain you any further, Major Cavanaugh. We are very much obliged to you.

Major CAVANAUGH. You are entirely welcome.

The CHAIRMAN. In view of the fact that the gentlemen who appeared before the committee at its last hearing on this bill referred frequently to the report that was recently made to this committee by Prof. Willis L. Moore, it seemed to me only fair, and I am sure the committee holds the same view, to ask Professor Moore to come before the committee and make whatever statement he cares to in relation to it.

In a preliminary way, perhaps it might be well, in view of the interest that has been displayed in that connection the other day by members of the committee, if you should state, Professor Moore, something about your education and experience. Where were you educated?

STATEMENT OF PROF. WILLIS L. MOORE, CHIEF OF WEATHER BUREAU, DEPARTMENT OF AGRICULTURE.

Professor MOORE. Well, Mr. Chairman, that is rather a personal question, but still I think it is a pertinent one, and as my report is being given considerable attention I do not hesitate to answer the inquiry.

I will have to be a little reminiscent in order to answer that. I came on my own resources at 13 years of age. I found employment in a newspaper office. After I became a journeyman mechanic and was 21 years of age I employed private tutors in mathematics, the English language, French, and German. I came into the meteorological service as a mechanic. I had the advantage of one of the best scientific libraries in the country, the largest meteorological library and the most complete in the world, and I had the association of some of the brightest minds, meteorologically, in the world, who would aid me in acquiring a modicum of education, at least, so that my study has been largely an independent one. Prof. Cleveland Abbe, of the Weather Bureau, has been a very great aid to me. Professor Hazen, now dead, taught me the better part of my mathematics, so that I have had a sort of slow growth—

THE CHAIRMAN. May I inquire where you came by the title of "professor?"

PROFESSOR MOORE. I got the title of "professor" as the result of an examination held in 1893 by the order of the Secretary of Agriculture, who threw open to competition a professorship of meteorology in the Weather Bureau. The board of examiners that provided the examination, and held it, were a former chief of the Weather Bureau, Prof. Mark W. Harrington, at one time director of the astronomical observatory at Ann Arbor; Prof. Thomas C. Mendenhall, now president of the Polytechnic Institute of Worcester, Mass., and then Superintendent of the Coast Survey; Prof. Charles W. Dabney, president of the University of Tennessee, and Maj. H. H. C. Dunwoody, a graduate of West Point, of the army. That board held an examination, and as a result I was awarded the professorship. I had, I think, 23 competitors, most, if not all of whom, were graduates of leading universities.

THE CHAIRMAN. Do you hold any scholastic degree, complimentary or otherwise?

PROFESSOR MOORE. Yes; I have two honorary degrees, one of doctor of laws, and one of doctor of science, and I am a Fellow of the American Association for the Advancement of Science.

THE CHAIRMAN. From what institutions?

PROFESSOR MOORE. LL. D. of Norwich University at Northfield, Vt., and Sc. D. of the St. Lawrence University, of Canton, N. Y.; both small institutions, but of old and reputable standing. I think there is a member of the board of trustees in one of these institutions on this committee.

THE CHAIRMAN. Have you ever given lectures before scientific institutions?

PROFESSOR MOORE. Before I answer that, I would like to make my other answer more complete. You asked me what recognition I had received from other scientific institutions. I will say I am an honorary member of the Austrian Meteorological Society, an honorary member of the Royal Meteorological Society of Great Britain, and I have just completed five yearly terms as president of the National Geographic Society—that is, of five yearly periods—and have been four years a vice-president of the Washington Academy of Science. I am editor of technical meteorological terms for the Standard Dictionary, author of the chapter on "Climate" in the Encyclopedia

Americana, and of a college text-book on descriptive meteorology now in the Appleton's press and soon to be issued.

I seem to be compelled to make this statement by the inquiries that have been made, and therefore I think that I will be pardoned for what might otherwise seem to be a personal description, possibly an immodest one.

In answer to your last question, Mr. Chairman, I will say that by request of the following institutions I have lectured under their auspices on meteorological subjects: Yale University, Columbia University, Chicago University, Johns Hopkins University, Georgetown University, the Catholic University of America, Norwich University, St. Lawrence University, and many other educational institutions.

The CHAIRMAN. I think it is of interest to the committee to know. That is the reason why I asked whether you have ever given any lectures before scientific institutions.

Professor MOORE. Mr. Chairman, I will interject a little statement, if you will permit me. I notice in reading the testimony of Professor Roth, professor at Ann Harbor, Mich., that when asked his opinion with regard to my personal attainments his answer was this: "Not by a long shot. Not by a mile square."

Mr. LEVER. Mr. Chairman, I am curious to know how it happens that Professor Moore knows about this quotation.

The CHAIRMAN. He had a copy of the hearings.

Mr. LEVER. Professor Moore had a copy of the hearings?

The CHAIRMAN. Yes; Professor Moore had a copy of the hearings.

Mr. LEVER. I have been trying to get a copy all along the line, and could not do it.

The CHAIRMAN. I am responsible for that, of course, because Professor Moore, when invited to come here, naturally wanted to know what had been said. They are not printed.

Mr. LAMB. They ought to be printed, certainly.

The CHAIRMAN. He was given a typewritten copy in order that he might know what was said in relation to his report.

Mr. RUCKER. I agree that it was highly proper for Professor Moore to have a copy of that record.

Mr. STANLEY. Yes; it was only a matter of justice to him.

The CHAIRMAN. Now, Professor Moore, you may proceed, and make any statement you desire to make.

Professor MOORE. I have only to say with regard to this answer of Professor Roth that it might not be germane, but still it may be. I would criticise his rhetoric as a professor at Ann Arbor University. A little further on, when asked if he is an expert in forestry he makes the answer, "I certainly am," if I read the testimony correctly; and still further on in his testimony his attention is called to some report of Prof. Bailey Willis, to which I had referred in my report on floods, and, noticing that my first name was Willis, he said facetiously, "There is too much Willis in this report."

I would answer by saying that possibly there were too many facts and statistics in that report for Mr. Roth.

I further notice that in his entire answer and testimony before this committee he did not answer one single fact that was substantiated in my report by data. He did not bring to this committee statistics.

I wish to present to the committee a brief summary, and I will not take long in the doing of it. Now—

Mr. McLAUGHLIN. Professor, did you notice there the statement of the chairman to the effect that Professor Roth's time was very limited? The committee here knew it, and it might be well enough to have it go into the record that he was hurried, and spoke very rapidly, and regretted that he had not more time. When you speak of his rhetoric you know that he is of German birth, and does not use the English language as well as the native-born.

Professor MOORE. That may be so. But I do not think it is necessary for me to qualify my answer in any way because of that fact.

Now I will proceed, if you will permit me, in making a brief summary of what I believe my report statistically shows, which is this: I have shown that the average height of the Ohio River, taking Cincinnati as a central station—the average height for thirty-eight years, taking the exact gauge readings—the exact height that the water stood each day in those thirty-eight years for the first nineteen years and for the last nineteen—that the average height of the river has not materially changed. Then, studying that fact in connection with the record of precipitation made at several rainfall stations, we find that the slight variation in the flow of the river is in proper accord with the slight variation in the precipitation, it being a mere fraction greater for the latter period. I have then taken all the four wet months for the thirty-eight-year period, and all the four dry months, and I have established the average low water for the entire period and the average high water. Then I have divided the period into two parts, and I do not find that there is any material change in the average high water or the average low water, except that what variation there is is slightly less high water and slightly greater low water.

I am now giving you things that, statistically, I think, my report shows clearly; and third, and I think most important for this discussion, that the number of days during a period of twenty-eight years—you will notice I am taking twenty-eight years now, and not thirty-eight years, because I am only picking a period for which we have good clean records, not open to objection—that, during a period of twenty-eight years, the number of days the river at one point on the Tennessee, two on the Cumberland, and five on the Ohio stood above the danger mark, in other words stood at flood or above, was without question markedly less in the last half of that period than in the first half.

Now, I do not know to what you may attribute that, but—

Mr. STANLEY. May I ask you a question right there? It may be a misapprehension of mine. You will know more about it than I. Did your investigation go into the question of the number of days when the river was navigable in the earlier and later periods?

Professor MOORE. No, sir. I have not considered whether at any of these stages the river was navigable or not.

Now, I do not want to lose the continuity of my statement, and I—

Mr. LEVER. Mr. Chairman, will you allow Professor Moore to complete his statement first or will you permit us to ask questions now?

The CHAIRMAN. I think it would expedite the hearing to let him go on without interruption.

Professor MOORE. The point to which I would direct attention is this: That in the testimony of Professor Roth—and in that I would include Professor Swain and that of two or three gentlemen whose

names I do not remember—that none of them criticises the data that I have used in my report to show these three important facts in this controversy, namely, that the average flow of the Ohio River, as determined by its height, has not changed; that the average high water and the average low water have not markedly changed; and that what change there is is beneficial; that the actual number of flood days is less in the last period than in the first. They did not attack those fundamental data. They gave you their individual opinions. One of them—I think it was Professor Glenn, if I remember his testimony correctly, and if I do not state it correctly you gentlemen will remember it and correct me—said if I had spent sufficient time in the field I would not entertain the opinions that I do. He said he had spent four years in the field, observing the operation of the rainfall on the watersheds and the gathering of the water in the main streams. I would answer that and say I have spent over a third of a century every day in watching the fall of rain on the various watersheds and its gathering into the tributaries and its moving from the tributaries to the main streams. My duties have compelled me for a third of a century to watch this problem. Professor Glenn does not produce a single rainfall reading made during those four years or a single stream-gauge reading. If he had, I would say that four years are entirely too short to reach an opinion of any value in this problem, and it is a great problem. It is one that may influence the American people in the founding of an economic system that will mean a great deal to this nation.

I certainly can have no motive in coming here, except to do my best to get the truth before this committee, and I do not hesitate to say here that there has been much loose talk; there has been a great amount of material published to influence the opinion of the American people that I say is fundamentally wrong, that is almost malicious in its results. This problem, which requires many years to settle, has very glibly been settled by a number of investigators who have walked up to the Weather Bureau and taken our records on rainfall and precipitation for a few years and examined only fourteen or nineteen years' data, or some other short period, and from such insufficient data—within which one abnormal rainfall might destroy the value of any fundamental deductions as to a change in flood frequency or intensity—they have gone out before the public seriously and confidently with the air and mien of scientific men and said, "This problem is practically settled. There is no question at all but that the flow of streams is positively controlled by the forests."

I do not hesitate to say to you, gentlemen of the committee, what I said before the Conservation Commission nearly two years ago, and I would make it plain to this committee that my position was stated a long time ago when I appeared before the Conservation Commission, but that not one word of my opinion appeared in the conservation report, and not one word of it was given to the press. I there took issue with Mr. Leighton's paper in which he showed such an alarming increase in the floods of the Ohio Valley as to almost startle one. I took issue with his reports, there, in the presence of that commission. I have tried repeatedly to get a copy of my statements, but I have never succeeded in getting them or in seeing them in print.

I simply make this statement to show that my position began early in regard to this problem, and I am glad of the opportunity to come

before this committee. I do not come hesitatingly. I come willingly. I come in the cause of truth, and I am willing to defend my position indefinitely.

Now, if I may continue, with your permission, I would like to introduce a few comments that I have received with regard to my report.

The CHAIRMAN. Professor, before that, although they would be very interesting—before you proceed to that—I would like to have you explain to the committee in just what way, according to your estimate of the data, the Leighton report is faulty.

Professor MOORE. It is fundamentally faulty in this, that Mr. Leighton took, for a flood stage at all of the stations whose records he discussed, a reading far below the flood stage. Now, as an illustration, at Wheeling, W. Va., he took a stage of 20 feet, and counted the number of 20-foot stages, and recorded them as floods. Now, it is a fact—a simple fact about which there is no dispute—that the river is not in flood at Wheeling, W. Va., until it reaches 36 feet. Therefore, Mr. Leighton's paper was one in which he was discussing only moderate stream flow, instead of actually discussing floods. Again, in order to show the relation of precipitation to floods, he divided the number of days that this imaginary flood stage was reached by the annual precipitation. I do not wish to appear facetious, and with all seriousness, I will say that the annual precipitation divided into the number of days of some imaginary flood, or of some real flood, even, has as much relation to the flood intensity as has the price of eggs in Boston, and no more.

Those are two fundamental objections that I would make to his report. But I wish to say that I think Mr. Leighton was honest in his investigation; I simply differ from him in calling a moderate height of the river a "flood stage."

The CHAIRMAN. Proceed, then, Professor, and make the statement you were beginning in reference to the comments upon your report.

Professor MOORE. Oh; I have finished my reference to that.

The CHAIRMAN. You were just about to refer to comments upon your report.

Professor MOORE. Oh, yes. I have received this communication, which I think will interest the committee, from Mr. Freeman F. Burr, science teacher, state normal school, New Haven, Conn.:

STATE NORMAL SCHOOL,
New Haven, Conn., February 17, 1910.

Prof. WILLIS L. MOORE,

Chief of the United States Weather Bureau.

DEAR SIR: Your report on the Influences of Forests on Climate and on Floods has recently come to me, and I have taken great pleasure in reading it.

The idea that forests could influence weather conditions to such an extent as to produce an important effect on rainfall has never appealed to me; but I have accepted as sensible and admitting of proof the idea that forests exert a decided influence on the run-off, in large measure controlling stream flow and preventing floods. Your arguments, however, backed as they are by seemingly indisputable data, are very convincing to the contrary.

As you say, there are plenty of other reasons why our forests should be economically dealt with; and it certainly will not hurt the cause of forest conservation if we are somewhat chary in the use of an argument which is at best of debatable value.

In connection with some of the small streams about here, flood conditions prevailed in the early part of this winter largely because of heavy rainfall after

the ground had become covered with ice. Under such conditions it is hard to see how the forest could have had any appreciable value in controlling the run-off.

Sincerely, yours,

FREEMAN F. BURE, *Science Teacher.*

I have a letter here from Robert E. Horton, of Albany, N. Y., who belongs to the American Association of Civil Engineers. He is a consulting hydraulic engineer, at 57 North Pine avenue, Albany, N. Y. He says:

57 NORTH PINE AVENUE, ALBANY, N. Y.,
February 21, 1910.

Prof. WILLIS L. MOORE,

Chief United States Weather Bureau, Washington, D. C.

DEAR SIR: Copy of your report on the Influence of Forests on Climate and on Flood Conditions is at hand. I have read this report with great interest, and am, of course, gratified to find that the views therein expressed coincide closely with those I have held. There has undoubtedly been an effort on the part of some government officials and so-called forestry promoters to stampe the scientific aspects of this question in order to secure campaign ammunition in support of measures that ought to stand on their own merits. I am a thorough believer in forestry and in conservation, but I do not believe in attempting to deceive the American people into maintaining forests to accomplish results which they will not accomplish. I have made somewhat extended studies of the question of forest influences on stream flow. Including the translation of Ebermayer's results into English units and a study of the longest stream-gauging records and rainfall records in the world. Among salient points which have come to my notice with regard to this matter are the following:

First, there is no general rule as to the effect which deforestation will have on the flow of a stream which is applicable to all drainage basins. Many writers on this subject ignore the wide difference in run-off of streams resulting from causes other than the presence or absence of forests. For example, much was written at one time regarding the benefit of the Adirondack forests on the flow of the Hudson River, based on the comparison of the yield of the Hudson River and Genesee River. The physiographic conditions of the two drainage basins, the rainfall, the geology, and the forest conditions, all being widely different, yet the author boldly credited all the difference in run-off to the presence of forests.

On a precipitous, rocky drainage basin the complete removal of forest cover would undoubtedly accentuate floods in summer time. It would also increase the average flow of the stream, and might decrease the spring floods by causing greatly increased snow evaporation and decreased snow storage.

I was going to skip a part of this, but possibly I had better read all of this for the benefit of Mr. McLaughlin, if he desires, because it has special reference to Michigan:

In flat, sandy drainage basins, such, for example, as vast areas of the pine plains of the northern part of the lower peninsula of Michigan, complete deforestation, as has there taken place without being followed by subsequent drainage or tillage, has, in my opinion, undoubtedly greatly increased the low water flow of the streams, which are supplied almost entirely from ground water, there being little direct surface run-off. This is evident when we consider that with these areas forest covered and with only 30 inches annual rainfall, not more than 15 or 20 inches of precipitation ever reached the ground. There being no surface run-off this was either evaporated from the forest litter or else filtered downward, supplying the ground water. With forest removed and a scanty covering of scrub oak and jack pines, nearly the entire precipitation reaches the ground surface. There is very little litter or humus, and rain is directly absorbed in the porous soil with little evaporation loss. The gaugings of many of these streams, conducted under my direction for several years, show that in the summer time they often yield from ground storage a volume of run-off exceeding the rainfall during a given month. In the southern part of the same peninsula the magnitude of floods has undoubtedly increased during recent years. For example, there is no evidence of earlier floods on Grand River of such magnitude and frequency as those which have occurred in recent years, and which are being investigated for the Weather Bureau by Section

Director C. P. Schneider. In proof of this I have my own observations as resident of Michigan for twenty years, as well as those of my father, a resident of the State for some fifty years and a careful scientific observer.

As would be expected, many people in Michigan attribute this increase in floods to the cutting off of the forests. The forests were removed in Grand River and other drainage basins to nearly the same extent as at present some twenty or thirty years ago. A marked increase in floods did not occur, however, until extensive drainage operations had been carried out. I have compiled statistics which show that from 30 to 60 per cent of the farm land in southern Michigan has been rendered directly tributary to streams by artificial drainage. It is perfectly clear to me that in southern Michigan the increase in floods was due to drainage operations which have followed deforestation rather than to the removal of the forests. And it is, I think, quite generally true that deforestation seldom occurs alone and that the effects attributed thereto, especially the drying up of springs and marshes, are usually the result of subsequent tillage and drainage operations.

One hears so much about the protection of slopes against erosion by means of forests that it seems worth while to call attention to an actual example. It is not denied that proper forest cover does prevent erosion in some cases, but "the medicine may be worse than the disease" in the case cited below.

A steep slope of West Canada Creek, in New York, causes trouble to the highway and railroad every spring by landslides. The slope is partially wooded with hemlock trees. When the ground softens in the spring the wind sways these trees farther and farther over until one after another they slide down the slope, bringing large masses of earth with them. Where there are no trees but merely brush and brambles there are very few landslides. I am sorry I can not send you a photograph of this slope, because here one can see a forest actively engaged in destroying an earth slope, all stages of the process being actively in progress and a considerable sum of money being expended every year to remove the debris.

My feeling is that an interpretation of the effect of a given set of physiographic and cultural conditions on run-off is a complex and scientific problem worthy of careful study by hydrologists and engineers. It is lamentable that some of the most prominent men in this country have turned "nature fakirs," proving themselves either densely ignorant of elementary science or else guilty of willful falsehood. Some of these men with whom I have talked did not hesitate to admit that they were perverting science to politics, the only excuse being that the end justified the means. The paper by Colonel Chittenden, published by the American Society of Civil Engineers, and your report will do much to restore the science of hydrology to its own.

Very truly, yours,

ROBERT E. HORTON.

Mr. LEVER. If you will permit me, may I ask whether it is not a fact that the State of New York is, in fact, reforesting the headwaters of the Hudson River?

Professor MOORE. Yes, sir; I believe they have spent many millions of dollars to do that very thing. But it is never too late to correct a mistake.

I have another letter here, from Mr. E. A. Lanning, principal of the high school at Globe, Ariz.:

GLOBE HIGH SCHOOL,
Globe, Ariz., February 18, 1910.

DEPARTMENT OF AGRICULTURE,
Washington, D. C.

GENTLEMEN: I have just received a copy of Mr. W. L. Moore's 1910 report on "The influence of forests on climate and on floods." It is just what I want for my class in physiography. If it is for gratuitous distribution, will you mail me 20 copies for my class? Also any other material of similar nature suitable for class work on forestry.

Thanking you in advance,

Very truly,

E. A. LANNING.

Mr. LEVER. Let me inquire, in connection with that letter, is that man, the principal of this high school, in any way a civil engineer?

Professor MOORE. I think not; simply the principal of a high school.

Mr. LEVER. And his opinion about it would be worth no more than that of an ordinary layman?

Professor MOORE. No more than an opinion by any other educated man.

Mr. LEVER. We could fill this record with the opinions of ten millions of men.

Professor MOORE. Then I will limit my quotations to men who are professors.

The CHAIRMAN. I think the Professor had better limit his letters to men of recognized standing.

Professor MOORE. I think I had better do that myself.

Here is a letter from R. H. Thomson, department of public works of the city of Seattle:

DEPARTMENT OF PUBLIC WORKS OF THE CITY OF SEATTLE,
OFFICE OF CITY ENGINEER, *February 18, 1910.*

HON. WILLIS L. MOORE, LL. D., Sc. D.,
*Chief of United States Weather Bureau,
Washington, D. C.*

DEAR SIR: I am very much pleased to receive in this day's mail a copy of your paper touching the influence of forests on climate and on floods, concerning which I had the pleasure of listening to you a few minutes in the Arlington Hotel at Washington early in January. I have not yet had opportunity to carefully read the same, but will take time to do so at the earliest possible moment and to discuss the same with General Chittenden, who I know will enjoy and very much appreciate the paper.

Very sincerely, yours,

R. H. THOMSON.

Now, here is a letter from the secretary and treasurer of the National Rivers and Harbors Congress, Mr. J. F. Ellison, of Cincinnati, Ohio. He says:

NATIONAL RIVERS AND HARBORS CONGRESS,
Cincinnati Office, February 16, 1910.

Prof. WILLIS L. MOORE,
*Chief of the United States Weather Bureau,
Washington, D. C.*

MY DEAR SIR: I have just finished reading your published report on the influence of forests on climate and on floods, the entire contents thereof being intensely interesting and confirming, scientifically, what the writer has been contending from a layman's standpoint as correct for the past six years, during which time a great deal of influence has been brought to bear on the advocates of waterway improvement for the benefit of navigation, in an effort to bring them to the idea that reforestation of the headwaters of navigable streams was one of the chief ways to improve said streams.

I have read practically everything that has been put out by Mr. M. O. Leighton, chief hydrographer, United States Geological Survey, on this subject, also what has been written by Colonel Chittenden on the same subject, but taking the opposite view as expressed by Leighton, and in accordance with the views you have so ably expressed, I am writing to ask, as a very special favor, for as many copies of your published report as you can consistently send to me. This request carries with it the assurance that these copies will be distributed where they will do a great deal of good, and correct in the minds of some prominent people the views they now hold.

Sincerely trusting that you can comply with the request, I beg to remain, after expressing my appreciation of the masterly manner in which your subject is set forth,

Very truly, yours,

J. F. ELLISON.

He is not an engineer, but he is secretary to the Rivers and Harbors Congress, and that is why I thought his letter would be germane.

This is from the state engineer of Wyoming, dated Cheyenne, February 21:

THE STATE OF WYOMING,
ENGINEER'S OFFICE, CHEYENNE,
Cheyenne, Wyo., February 15, 1910.

Dr. WILLIS L. MOORE,
Chief, United States Weather Bureau, Washington, D. C.

DEAR SIR: Having met you on several occasions while with Professor Mead in the irrigation investigations of the department, I have, naturally, followed with great interest the papers you have published relating to rainfall, stream flow, etc. These problems come to my office in a very practical manner and any light that we can obtain is thankfully received. I am led to write you a short letter of congratulations at this time, because I have just finished reading your recent paper on The Influence of Forests on Climate and on Floods. I consider this to be the most valuable document that has been published by any department of the Government during the past year. It has been so difficult to secure a sane consideration of scientific questions for some time past, owing to the desire of some officers, who assume themselves men of science, yet attempt to mold public sentiment in favor of theories that benefit their particular line of work, regardless of the existing facts.

I have always had great admiration for the manner you have conducted the Weather Bureau. I have always accepted your publications as being based on scientific facts, and I know that in the discussion of these facts you aim to present the truth unalloyed, rather than to attempt to place some shade of meaning by your reasoning that might be of political value to your department. I regret that other well-known departments have not followed the same commendable course.

Thanking you for having given your valuable time to the discussion of questions of "the influence of forests on climate and on floods," I am,

Sincerely, yours,

CLARENCE T. JOHNSTON, *State Engineer.*

I will pass these as rapidly as I can, gentlemen. This is from Mr. Thomas T. Ivy, forest engineer, Fayetteville, N. C.:

FAYETTEVILLE, N. C., *February 12, 1910.*

DEAR SIR: Chairman Scott, of the House Agriculture Committee, with whom I have a pleasant personal acquaintance, has sent me a copy of your report On the Influence of Forests on Climate and on Floods. To me this is a most welcome and friendly document. As Mr. Scott will corroborate me in the statement, these are the views I have held, talked, and tried to publish widely. Of course, you can well imagine, therefore, that I am in bad respect with the late deposed head of the Forest Service. But I think the tide is turning and we are now approaching a period of common sense and scientific truth on this subject. But a great deal of harm, in my opinion, has been done to the advancement of forestry by the injection of discussions that were not at all necessary at this time. Forestry, as I define it, has for its purpose, first and foremost, the furnishing of our wooden industries with a continuous supply of wood fiber. It should be held at this and practiced for that end.

And I congratulate you on the clear and convincing way in which you have presented the facts and inevitable conclusions from them, and I think the publication of your report will mark a new epoch in the history of the forestry discussion in the United States.

Yours, truly,

THOMAS P. IVY.

Here is a letter from Mr. George M. Lehman, of the Flood Commission, Pittsburg:

FLOOD COMMISSION OF PITTSBURG,
Pittsburg, Pa., February 17, 1910.

Mr. WILLIS L. MOORE,
*Chief of the United States Weather Bureau,
Washington, D. C.*

DEAR SIR: I beg to acknowledge receipt, with thanks, of the interesting report (three copies) on The Influence of Forests on Climate and on Floods.

If possible, I would very much appreciate a few additional copies of this report for distribution among some of the members of the commission.

Thanking you in advance, I remain,

Yours, very truly,

GEORGE M. LEHMAN,
Engineer in Charge.

This is from Mr. F. N. Utter, attorney at law, Harve, Mont., sustaining the report; but I will not read his letter, as he is not an engineer, but will submit it merely for printing:

HAVRE, MONT., *February 16, 1910.*

C. W. LING,

Observer, United States Weather Bureau, Havre, Mont.

DEAR SIR: I wish to thank you for favoring me with a copy of "A report on the influence of forests on climate and on floods," by Willis L. Moore.

The article is particularly interesting and instructive at this time, owing to the public discussions of conservation of forests and the effect of deforestation, and has an increased local value from the facts that the eastern portion of this State is just entering upon its first general, practical experience in "dry-land farming," and the western part of the State has such a large percentage of its area in forest reserves, including much that might be profitably devoted to agriculture.

It seems to me that his reasoning is clear and his conclusions logical, and they have weight which should serve to correct some very general but erroneous ideas.

For instance, the statement is often made that the precipitation in North Dakota has greatly increased since the land has come under cultivation. And that is the expectation of many who are entering upon their first experience in so-called "dry-land farming" in Montana. While a knowledge that they need not expect any continued change in the precipitation would be some discouragement to those who had believed otherwise, it would also result in a more scientific effort in farming operations.

As to the forest reserves, it is to be hoped that the article will enlighten the public intelligence to the end that so much of the forest reserves as may be sufficiently cultivated shall be opened to agriculture. There is one point that does not seem to have been touched upon, viz, the effect of deforestation on wind velocity, temperature, and evaporation at the height of growing crops in a region interspersed with groves.

However, as the author was not treating on any narrow local conditions, and deforestation could not affect the general wind currents, say, 200 feet above the surface of the earth, he probably considered the matter as having no place in his article.

Respectfully,

F. N. UTTER.

This is from Prof. Ellsworth Huntington, a professor of Yale, one whom I quoted quite extensively in my report, showing that the forests of China have stood off the drought condition of the country. He says:

NEW HAVEN, CONN., *February 21, 1910.*

MY DEAR PROFESSOR MOORE: I have been much interested in your report on The Influence of Forests on Climate and Floods. The moderate way in which it is stated makes the report very convincing.

Yours, sincerely,

ELLSWORTH HUNTINGTON.

Prof. WILLIS L. MOORE,

Weather Bureau, Washington, D. C.

This is from Daniel Draper, of the department of parks, city of New York, acknowledging receipt of the report with pleasure:

THE CITY OF NEW YORK,
DEPARTMENT OF PARKS,

February 21, 1910.

Prof. WILLIS L. MOORE,

*Chief of the United States Weather Bureau,
Washington, D. C.*

DEAR SIR: I have read with pleasure your report on The Influence of Forests on Climate and on Floods. You have gone into the subject very thoroughly.

By this mail I send to you my report on the same topic printed in 1872. I was led to write it after reading Minister Marsh's book on the Earth as Modified by Man.

Yours, truly,

DANIEL DRAPER.

Mr. LEVER. Of what is Professor Huntington a professor—the Yale man?

Professor MOORE. I think he is a professor of physical geography, or an assistant professor. He is a geologist, too.

This is from Mr. L. J. Le Conte, United States assistant engineer, written on the stationery of the Engineer Office of the United States Army at San Francisco.

Mr. STANLEY. Is he the author of a work on geology?

Professor MOORE. I think so. He says:

WAR DEPARTMENT,
ENGINEER OFFICE, U. S. ARMY,

706 Chronicle Building, San Francisco, Cal., February 21, 1910.

Prof. WILLIS L. MOORE, LL. D., Sc. D.,

Chief of Weather Bureau, Washington, D. C.

MY DEAR PROFESSOR: I was greatly pleased with your pamphlet on The Influence of Forests on Climate and on Floods, placed on file to-day.

If not asking too much, I would be greatly pleased to have a copy for my private library.

Thanking you in advance for the courtesy, I am, sincerely,

L. J. LE CONTE, U. S. Assistant Engineer.

Here is a letter from Prof. Frank Leverett, geologist, of Ann Arbor, Mich. It is quite a long letter. He takes issue with me on this ground: He says that in the Ohio basin, which we are discussing and through which he has traveled extensively, there has been little or no deforestation in forty years, unless it has been in the southeastern portion of the region. That is the pith of his paper. He says:

ANN ARBOR, MICH., February 23, 1910.

Dr. WILLIS L. MOORE,

Chief of the United States Weather Bureau,

Washington, D. C.

DEAR SIR: I have read with much interest your report on the influence of forests on climate and on floods just issued by the Committee on Agriculture of the House of Representatives. On the matter of the influence on climate I do not feel qualified to make any criticisms, but on the question of the effect on floods there are certain points I should like to raise.

You appear to have demonstrated very clearly in the tables and discussion in reference to the Ohio River basin (pp. 30 to 37) that the run-off and precipitation are in very close correspondence. The chief point I would raise in reference to your discussion and conclusions is that of the extent of the deforestation. Are you certain that there has been any marked amount of deforestation in the last thirty-eight years? I have been over the northern part of the Ohio drainage basin in western New York, western Pennsylvania, northwestern West Virginia, northern Kentucky, and the portions in Ohio, Indiana, and Illinois in considerable detail in the course of several years of glacial investigations, embracing probably two-thirds of the area of the drainage basin, and I feel quite certain that in the part with which I am familiar the amount of deforestation is a negligible quantity for the period covered by your run-off and precipitation tables. It is an old farming district, from which the timber has been largely cleared forty or fifty years ago and in some cases at a much more remote period. Such deforestation as would be of a magnitude sufficient to have a bearing on this problem of the influence of forests on floods I should say must be looked for in the southeastern third of the Ohio River basin. I am not myself in possession of data on that region from which to form a judgment.

Your data, I see, are based upon the portion of the Ohio basin above the mouths of the Cumberland and Tennessee rivers and most of the rivers of Kentucky. So there really remains only the mountainous portion of eastern Ken-

tucky and West Virginia in which there is a chance for deforestation that would affect the run-off at Cincinnati, and this is a very small part of the portion of the Ohio basin above Cincinnati. I question whether, in view of this meager chance for deforestation to influence the run-off, you made a good selection in taking the Ohio drainage basin as a test. I certainly would not assent to your italicised statement, on page 33, that deforestation has probably been as great in the basin of the Ohio River above Cincinnati as in any other part of the country during recent times. In my opinion the Great Lake region has experienced a much greater percentage of deforestation in the course of the past fifty years than the Ohio River basin. Unfortunately, this region has not full data on run-off in relation to precipitation, the observation stations for precipitation being less widely distributed than would seem necessary for statistical work.

You seem to have had in mind on discussing the ratio of the forested area to the total watershed (pp. 24 and 25) a thought similar to what I am seeking to convey, namely, that the area subject to deforestation is too small to greatly affect the run-off in the lower course of the Ohio. Your thought, however, is to emphasize the unimportance of forested areas, while my thought is that you have made a poor selection to take the Ohio as a test case. I fail to understand why you should have taken this drainage basin as a test case unless you are under the impression that a large part of the Ohio drainage basin has suffered deforestation in the past thirty-eight years, and this I am sure is not the case.

Another point on which I would express a view somewhat different from yours is that of the importance of checking the flow of water in the upper reaches of the stream. Your statements on pages 24 and 25 would seem to indicate that the multitude of small headwaters are inconsequential, yet it is from them that the major tributaries are formed. The little childhood jingle—

"Little drops of water, little grains of sand,
Make a mighty ocean and the beautiful land,"

should not be forgotten in considering what goes to make up the major tributaries and large features.

This letter is an outcome of your invitation, on page 27, for discussion of the matters with a view to "finding common ground upon which all well-meaning persons may stand." I trust that the whole matter of influence of forests upon floods will be given the most thorough study in determining the policy of the Government in reference to conservation.

Very respectfully,

FRANK LEVERETT. *Geologist.*

You will observe that he says there has been very little deforestation in the Ohio River catchment basin. I introduce it because I believe it to be the contention of the Forest Service that there has been a remarkable increase in the floods in the Ohio section, and that this is due to the effect of deforestation. I do not know anything about the extent of deforestation. You will notice also he says he has traveled for many years through the region.

Mr. LEVER. If your statement is correct, then your figures as to the Ohio River would be of no value at all.

Professor MOORE. Certainly they would be of just as much value as before to show that there has been no change in the flow of the river as the result of cultivation, and of course it would show further that if his statement is true, all of the alarming flood reports of the foresters and others that have been put out by three different investigators to prove to the nation that floods have increased because of deforestation are worthless as an argument upon which this committee might base action. If Professor Leverett's statement is true, that there has been no deforestation there, then you do not need to consider the region. Then the whole argument in regard to the increase of floods in the Ohio Valley practically fails.

Mr. STANLEY. I do not like to interrupt you, but is it a fact that there is no available data as to the deforestation itself? I thought that was the basic fact upon which all this discussion was founded.

Professor MOORE. I have taken the position in all this discussion that if a river has been found to increase in flood intensity then it is up to the forester to show that that increase in the flood intensity is due to deforestation. But I have never yet seen any figures to show what is the increase in deforested area within recent times. Of course we know that in a hundred years there has been an enormous decrease in forest area. I am inclined to think there has been more of a decrease in forest area than Professor Leverett's report would indicate.

The CHAIRMAN. If the Michigan man is correct in saying that there has been practically no change in the Ohio watershed, then the gentlemen who have appeared before the committee and in other places declaring that floods have enormously increased will have to seek some other explanation for it besides deforestation?

Professor MOORE. Yes.

Mr. McDERMOTT. The Ann Arbor professors do not seem to agree. Professor Roth did not agree with you, and here is one that does.

Professor MOORE. I am giving you all opinions. I do not pretend to be infallible. I rather resent the position of those who do claim to be infallible.

Now, I would like to introduce this letter. Here is a letter I sent to the Conservation Commission on August 24, 1908, in which I made an estimate that in twelve years the total loss by floods had been about \$260,000,000, a trifle more than \$20,000,000 a year. I introduced that because when I submitted that report the Conservation Commission people wrote me a letter, calling my attention to the fact that they had estimates of much greater loss as a result of floods, and suggesting that I raise my figures. In answering, I said that I could not change my figures. Now, if you will look in the conservation report you will find that their estimate of the loss of floods annually—I am speaking by recollection only—is from forty or fifty to two hundred and thirty-seven millions annually. I only cite the fact that this report as filed with them, showing an average of a little more than twenty million per annum, was the result of an estimate by the subordinates under me who have charge of the various river districts and by Prof. H. C. Frankenfield and myself. It is only an estimate, however, only individual opinions, without statistics back of it. And likewise the estimate in the conservation report. That is an estimate that has no statistics behind it that would, I believe, justify any such statement as to such losses by floods.

The CHAIRMAN. Do you happen to have the letter before you to which you refer?

Professor MOORE. I have my letter making my estimate.

The CHAIRMAN. I was inquiring in regard to the letter that you received, asking that your estimate be increased.

Professor MOORE. I believe I have it here. Yes; let me read this. Yes; this is the letter of the National Conservation Commission:

WASHINGTON, November 13, 1908.

Prof. WILLIS L. MOORE,
Chief, United States Weather Bureau,
Washington, D. C.

DEAR PROFESSOR MOORE: Mr. M. O. Leighton, of the Geological Survey, has furnished the National Conservation Commission with a set of estimates of the amount of loss by floods in each year since 1900, which are greatly in excess of the figures given by your office.

Mr. Leighton's figures are based upon data furnished him by a certain proportion of railroads reporting on the damage done to their property.

For example, in the year 1906, when your office reports but \$1,150,000 damage as a total of all kinds, Mr. Leighton has received from railroads, representing only 37 per cent of the total mileage of the country, an amount not less than \$2,700,000, showing, apparently, that the estimates of your office are far too low. Will you be kind enough to look into this matter?

I inclose herewith a copy of Mr. Leighton's estimate and a description of his method of estimating.

Yours, very truly,

HENRY GANNETT, *Geographer.*

I will submit, also, my letter of August 24, addressed to the National Conservation Commission, and the reply I wrote to their letter of the 13th of November, 1908:

UNITED STATES DEPARTMENT OF AGRICULTURE,
GENERAL OFFICE OF THE WEATHER BUREAU,
Washington, D. C., August 24, 1908.

HENRY GANNETT, *Esq.*,
National Conservation Commission,
Census Bureau, Washington, D. C.

SIR: In reply to question 3, Section E, page 31 of the Schedule of Inquiries, or Bulletin 3, of the National Conservation Commission, which reads—How much damage do they (floods) do? I beg leave to submit the following data for the years from 1897 to 1908 (July), inclusive. It has uniformly been a matter of much difficulty to obtain reliable data of this nature, but those given below are believed to be conservative. Ten per cent have been added to the computed amounts in order to cover the many small floods that occur annually in the smaller rivers for which no data were available.

	Amount of damage.
1897-----	\$3, 140, 000
1898-----	4, 508, 000
1899-----	8, 955, 000
1900-----	12, 375, 000
1901-----	10, 440, 000
1902-----	26, 610, 000
1903-----	54, 135, 000
1904-----	34, 353, 000
1905-----	12, 700, 000
1906-----	1, 150, 000
1907-----	17, 685, 000
1908-----	50, 348, 000
Total-----	236, 399, 000
Plus 10 per cent for reason given above-----	23, 639, 900
Total-----	260, 038, 900

As an indication of the general awakening on this subject, I also beg leave to inclose a clipping from the Galveston News of August 30, 1908. It is believed that this line of action was prompted largely by the Weather Bureau Circular, dated June 16, 1908, a copy of which is also inclosed.

Very truly, yours,

WILLIS L. MOORE,
Chief, U. S. Weather Bureau.

NOVEMBER 17, 1908.

HENRY GANNETT, *Esq.*,
National Conservation Commission,
United States Census Bureau, Washington, D. C.

SIR: I have your letter of the 13th instant relative to discrepancies in the estimates of losses by floods in the United States as furnished by the Weather Bureau and by the United States Geological Survey, and beg leave to say in reply thereto that the Weather Bureau can see no reason for modifying the figures given in my letter to you of August 24, 1908. As I understand the situation, Mr. Leighton's figures are based entirely upon estimates, while those of the Weather Bureau are only partially so estimated. The Weather Bureau has

52 different river centers, and after every flood the official in charge of each district by inquiry, correspondence, and personal observation calculates the resulting losses. Of course estimates figure largely, but there is also a large basis of actual facts, whereas, if I correctly understand your letter, Mr. Leighton's figures are based almost entirely upon the assumption that 90 per cent of the flood losses are calculated from estimates regarding the remaining 10 per cent.

The figures given by the Weather Bureau may be too low. In fact, we endeavor to be as conservative as possible, and underestimated rather than overestimated, but I am inclined to believe that Mr. Leighton's figures are entirely too high, principally for the reason that his primary assumptions were in error.

The facts given by Mr. Leighton for the year 1906 may be more nearly correct than ours. The year 1905 was not a flood year, and it is not at all improbable that a number of floods in some of the smaller rivers were not considered in our figures. In any event the total amounts were comparatively small during that year.

Very respectfully,

WILLIS L. MOORE,
Chief, U. S. Weather Bureau.

Now, I would like to introduce this letter, dated October 17, 1908:

UNITED STATES DEPARTMENT OF AGRICULTURE,
CENTRAL OFFICE OF THE WEATHER BUREAU,
Washington, D. C., October 17, 1908.

HENRY GANNETT, Esq.,

National Conservation Commission,
Census Bureau, Washington, D. C.

DEAR SIR: In reply to question 1, section E, page 31, of the Schedule of Inquiries, or bulletin 3, of the National Conservation Commission, which reads, "Are floods increasing; and, if so, why?" I beg leave to say that the Weather Bureau is not prepared to give a definite answer to this question at the present time. A great amount of data has been examined, but a careful inspection thereof reveals nothing upon which to base a positive statement. Perhaps the only fact that stands forth clearly is that floods are entirely dependent upon rainfall distribution. If they have been more than usually frequent during recent years, it was because the precipitation has been more abundant, and there is no reason to believe that a reaction will not occur within a reasonable time.

Very respectfully,

WILLIS L. MOORE,
Chief U. S. Weather Bureau.

Just one more thing I would like to introduce, Mr. Chairman, and then I am through, and would be glad then to take up the answering of inquiries. I am quoting now from the Engineering News under date of October 29, 1908. In this is a translation from a work of M. Ernst Lauda, chief of the Hydrographic Bureau of the Austrian Government. I will say, briefly, that he discussed the floods of the river Danube. He had information of the floods of the Danube for eight hundred years. As the result of the discussion he came to the conclusion that as the forests disappeared in the valley of the Danube the floods had slowly and constantly decreased. I would like to read a little from his paper:

For example, it is universally believed that forests have an influence in moderating and preventing floods, and deforestation upon their origin and more frequent occurrence; yet this belief is no better established from a hydrographic standpoint than the entirely unfounded belief that the floods of the past few years in Austria are due to deforestation. Likewise untenable are the frequent assertions that the greater frequency of floods in recent times is the result of artificial interference with stream flow, due to works of river regulation.

(3) No doubt the interests of hydrography are indirectly affected by forests through their property of preserving the earth's surface from denudation and the water courses from sediment; and also through the protection of snow masses deposited during the winter from the action of the sun's rays, the wind, and warm rains.

I differ entirely with this paragraph, although I shall read it, because I think it is only fair to give a complete idea of what he says—

These features are enough to warrant the greatest possible development of forestry. Moreover, on account of the slower melting of the snow less water reaches the streams, and consequently less sediment, and in this way only can the washing away of fertile soil and the terrible devastation of civilized regions be successfully prevented.

I would like to make a slight answer to that, which is this: The action of forests is to restrict wind velocity and cause snow to fall gently and spread evenly over the surface. On the very high slopes the low temperature of elevation may preserve the snow and not the forest; as a rule the drifted snow in the open and in ravines lies after the evenly distributed blanket of snow in the forest is gone, except possibly where the cold of elevation retains it, as explained above, and here the forest is usually only a thin scrub growth.

As to erosion, I do not hesitate to repeat what I have said before, that it is not an unmixed evil. The great Appalachian Range itself, by the beneficial—I repeat the word “beneficial”—processes of erosion, has been worn down from a height that was at one time possibly greater than that of the Rocky Mountains, and distributed over the lower reaches, where it is now growing fruitful crops. Erosion from the steep mountain sides, taking the humus and the soil off of steep slopes where it is too steep to be cultivated and depositing it on the lower reaches where it will rejuvenate the soil and grow food I do not consider an unmixed evil; and furthermore, erosion from steep mountain slopes must be small in amount as compared with the erosion from the cultivated fields. I will read a few more paragraphs from this paper:

(4) But with these benefits the advantages of forests in controlling floods are exhausted. That forests have a certain retentive capacity in holding back the precipitation is evident from the fact of the greater scarcity of the water in the streams in dry seasons after lands have been cleared up. But this beneficial influence, characteristic of vast forest areas, is local only, and can affect favorably only those valleys in the immediate vicinity of the forests. This retentive capacity does not exercise a decisive influence upon the cause, extent, and nature of high floods, such as have visited Austria and are the subject of our present consideration. Moreover, this capacity is quickly exhausted during great rain storms, when both atmosphere and soil are saturated with moisture. At such times the forests may even increase run-off over what it would be in the same region if free of forests, for in the latter case considerable quantities of water are lost in evaporation, whereas the foliage of the forests retards this process.

Mr. LEVER. Just in this connection, do you agree to this statement by the same author in the same paper:

The general utility of the forest is so well settled, the extraordinary appreciation in which it is held as a means of protecting the soil against landslides is so firmly established, its great advantageousness, especially for the spring district, in holding back earth thrusts and reducing the amount of sediment carried by rivers so important, that these reasons alone justify fully the greatest possible promotion of forest culture.

Professor MOORE. No; I do not agree to that.

Mr. LEVER. You do not agree to that?

Mr. MOORE. No, sir.

Mr. LEVER. I am quoting from the same paper that you were quoting from.

Professor MOORE. Yes; I do not agree to that, for this reason, that "the greatest degree of forest culture" is a very broad term, and while there is erosion on limited areas, it is not of such an extent or sufficiently harmful to justify, in my mind, a great expenditure of effort, or time, or money.

I would like, if you will permit me, to add just one letter to those which have already been produced, and the reason I ask this is because this is from Mr. Frederick C. Thwaits, one of the board of regents of the University of Wisconsin. In this letter he says:

I have rarely read a more splendid report. Your reasoning is clear and convincing and your conclusions unassailable. The publication of this report has been a real service to the cause of true conservation.

That is all that I have.

The letter offered by Professor Moore is here printed in full in the record as follows:

[The regents of the University of Wisconsin, office of the secretary, Madison, Wis.]

MILWAUKEE, WIS., February 23, 1910.

Prof. WILLIS L. MOORE,

Chief U. S. Weather Bureau, Washington, D. C.

DEAR SIR: I desire to thank you for the copy of your report on "The influence of forests on climate and on floods," which you so kindly sent me at my request.

I have rarely read a more splendid report. Your reasoning is clear and convincing, and your conclusions unassailable. The publication of this report has been a real service to the cause of true conservation.

May I contribute to you a bit of information which I recently came upon? It is anent "the recollections of the oldest inhabitant," etc.

In reading the biography of Noah Webster, I find that in 1799 he wrote an essay to disprove the then current belief that the winters were growing milder. I have not been able to get the text of the article as yet.

I thought this might be of interest to you.

Yours, very sincerely,

FRED C. THWAITS.

405 Iron Block, Milwaukee, Wis.

Mr. LEVER. Professor Moore, I would like to ask you just a few questions?

Professor MOORE. All right, Mr. Lever.

Mr. LEVER. Of course I assume that your report under discussion was written from the standpoint of the scientist, rather than from a standpoint of a statesman, and in that connection I would like to ask what you had in mind in this sentence, on page 3 of your report:

In the discussion of matters concerned with the conservation of the natural resources of the nation, some of which may involve the expenditure of hundreds of millions of dollars and the employment for years to come of thousands of public officials, a consideration of the relation of forests to climate, floods, and low water is vitally important.

Professor MOORE. Precisely.

Mr. LEVER. That is not a scientific proposition?

Professor MOORE. It shows the necessity of a scientific discussion; yes, sir.

Mr. LEVER. It shows the necessity of a scientific discussion?

Professor MOORE. I think so.

Mr. LEVER. Have you ever read the Weeks bill?

Professor MOORE. I looked over it a week or so ago.

Mr. LEVER. You know, of course, that the amount of money to be expended under the provisions of that bill is stated in positive terms?

Professor MOORE. No; I have glanced at it, but I am not concerned in that feature of it at all.

Mr. LEVER. Do you happen to know how many officials are now engaged on the 195,000,000 acres of land we now have in forest reservations?

Professor MOORE. I do not.

Mr. LEVER. Do you think that the addition of a few million acres that we might acquire in the White Mountains and the Appalachian Mountains might very greatly increase the number of employees to the extent of the employment of thousands of folks and the expenditure of millions of dollars?

Professor MOORE. I think the inauguration of a programme the object of which is to restrain floods by reforestation and to control climate or rainfall by the same methods must involve, not a reforesting of the small areas of steep mountain slopes and crests, but the lower levels that are now devoted to agriculture, and therefore to have an appreciable effect it must involve the expenditure not of one million or of a few million dollars, but of several hundred million dollars, to become operative. That is my conclusion, reached logically as a scientific man, although I have few data back of that. My opinion might be no better than yours on that; probably not so good.

Mr. LEVER. It is probably better. You seem to predicate your conclusion upon the idea that those of us who advocate this forestry policy advocate it because we believe that the maintenance of forests has an effect upon the temperature and climate.

Professor MOORE. That is what the forestry people have stated.

Mr. LEVER. As a matter of fact, that has never been argued before the committee.

Professor MOORE. It has not?

Mr. LEVER. No, sir.

Professor MOORE. That has been disseminated very largely by the Forestry Bureau through its publicity division and disseminated to the American people in great quantities.

Mr. LAMB. We have taken no account of that. We leave that to you scientific men.

Mr. HAWLEY. I would like to ask Mr. Lever a question, with Mr. Lever's consent.

Mr. LEVER. Yes; certainly.

Mr. HAWLEY. In connection with the question that you asked Professor Moore a moment ago, is it to be understood that when the money that is appropriated under the Weeks bill has been expended, that is the end of the policy? Is it not just the beginning?

Mr. LEVER. That is a matter that depends entirely upon the action of Congress in the future.

Mr. HAWLEY. If it was contemplated that that was the end of the policy, would it not be a different proposition? Would not the policy just begun? Is it not contemplated to acquire vast areas that can not be acquired by the expenditure of \$9,000,000?

Mr. LEVER. The only thing we can possibly be concerned with would be the getting of such forests as we can get for the amount appropriated in this bill.

Mr. HAWLEY. But it must be contemplated that this bill is not the only measure. It would mean a policy, and other bills would fol-

low; and if we begin a policy ought we not, as public servants, to look forward to what the final consummation of that policy will be?

Mr. HAUGEN. Is it not a fact that the report made by the Secretary of Agriculture indicates that the plan will involve an expenditure of hundreds of millions of dollars?

Mr. LEVER. It is also true that the action of the Secretary of Agriculture is not going to control the action of this Congress upon the bill.

Mr. HAUGEN. We referred the whole matter to the Secretary for investigation, and he investigated it and made a report to Congress.

The CHAIRMAN. I would like to suggest that discussion of this character, as to the ultimate effect of legislation, would more properly be in place when the committee is in executive session.

Mr. HAWLEY. Mr. Chairman, I submit that my questions are pertinent for the reason that it was contended that the Weeks bill was the end of the matter.

The CHAIRMAN. You got Mr. Lever's answer to that?

Mr. LEVER. Yes.

The CHAIRMAN. I think you had better proceed now.

Professor MOORE. I would like to say, if you will permit me, that because of the writing of my paper, in which I do not think that one word can be found inimical to forestry or to the work of the noble people who are trying to conserve the national resources of the United States, I have been criticised and misrepresented. I wish now to make it plain that I am not against, but I am heartily in favor of, anything that can be brought forward by this committee or any other committee that will serve to protect the resources of the United States, and there is nothing in my paper but what preaches the heartiest good will in that respect. I am not a master forester, but I plant trees myself, and I cut them down also. I plant them where I can not grow anything else. I cut them down where the ground is more valuable to raise food. I am of the opinion that the original idea in this was to grow timber for the value of the timber itself. We might grow forests and make them commercially profitable, but I should say, then, you should take an area that can not better be used for other purposes. I am only objecting to fallacious reasoning to sustain a beneficent purpose. I am only objecting to trying to sustain a truth by a falsehood.

Mr. LEVER. On page 4 you make this statement:

I believe that forests should be preserved for themselves alone, or not at all.

Just what do you mean by that?

Professor MOORE. What I have just stated.

Mr. LEVER. You have just answered that?

Professor MOORE. Yes; I have just answered that.

Mr. LEVER. You mean to say that the forests ought to be preserved for the timber supply and with the object of beauty and scenic effect and the like of that?

Professor MOORE. For that reason also.

Mr. LEVER. At the present rate of cutting how long will it be before we have exhausted our forest and timber supply?

Professor MOORE. I could not answer that; but I am of opinion that in large sections of our country the forest area has actually increased. I think in the State of Maryland, where I live, certainly

there is a larger forest area than there was twenty years ago. I think you will find that in Virginia also, Captain Lamb.

Mr. LAMB. You certainly will.

Mr. LEVER. How do you reconcile the statement that I have just read to you with your statement on page 5:

Unless it can be demonstrated that the conditions at these places materially affect the navigability of streams or harmfully affect the climate of the continent at large.

Professor MOORE. Well, let us see; let us read what precedes that. It reads:

It is found that in some limited areas where the forest is cleared away the soil, owing to its nature and slope, will not admit of successful cultivation. It may wash so badly under heavy rains as to become unfit even for reforestation. In others, owing to the nature of the surface, cultivation is impossible. These are fit places for local control, provided such control is commercially feasible, but not for national control, unless it can be demonstrated that the conditions at these places materially affect the navigability of streams or harmfully affect the climate of the continent at large.

I do not know that the two statements are inconsistent.

Mr. LEVER. You admit, therefore, that if it can be shown to the satisfaction of this committee that there is a substantial relationship between forested areas and navigability of streams, the preservation of forests then becomes a national problem, and we ought to deal with it as such?

Professor MOORE. I think there is no question but what then the Congress would have power to deal with it. That is a question for a lawyer to answer, but as a layman I would say that I think you have the authority under the Constitution to reforest areas for the purpose of controlling the flow of navigable streams, provided you can demonstrate that forest does affect the flow of navigable streams, which I dispute.

Mr. PLUMLEY. Have you any doubt that the mountains and hills covered by spruce, by hemlock, and the dark woods hold the snows far beyond the time when the snows out in the open continue to exist? Have you any doubt about that fact?

Professor MOORE. You mean not the deciduous forests?

Mr. PLUMLEY. No; I mean the black forests, the dark woods.

Professor MOORE. The forests of thick foliage?

Mr. PLUMLEY. Of spruce, hemlock, and pine.

Professor MOORE. You mean the forests that furnish shade and protection in the spring?

Mr. PLUMLEY. Yes.

Professor MOORE. They are trees that do not shed their foliage. The deciduous forests do not present the obstruction to the sunshine in the spring that the other forests present. Now, evergreen forests unquestionably protect the evenly distributed blanket of snow from the early action of the sun, and also partly protect it from evaporation during the winter, but the heaviest floods come from the forests just the same.

Mr. PLUMLEY. Do they not also protect it from evaporation during the summer?

Professor MOORE. That is right; retard evaporation during the summer likewise.

Mr. PLUMLEY. Yes.

Professor MOORE. Now, here is what results. In the first place the snow is evenly spread in the forest, evaporation and melting are restricted by the shade, but a much larger surface is presented to the processes of evaporation and melting; the drifted snow of the open last longer than in the open, where it is drifted. There is the point.

Mr. PLUMLEY. I want you to put it clearly so, if you wish to.

Professor MOORE. I wish to.

Mr. PLUMLEY. If you wish to, I want you to put it that even under the shade of the spruce or the pine it goes away before it goes out of the ordinary ravines.

Professor MOORE. Precisely; that is what it does do.

Mr. PLUMLEY. There is where you encounter the observation of tens of thousands of people.

Professor MOORE. Well, that is a matter of individual observation. I can take this committee out right now and demonstrate the truth of my statements to them.

Mr. PLUMLEY. I have sixty-five years of observation on that as against your forty years.

Professor MOORE. Every man has a right to his own opinion, and his opinion must be formed upon the facts which he has observed.

Mr. PLUMLEY. There are tens of thousands of people who have observed this.

Professor MOORE. Let me answer your question a little further. The slowly melting snows in the nondeciduous forests that are protected from the sunshine gradually melt down, the under snow absorbing the water from that above as it is melted until it becomes saturated. Just as soon as saturation takes place, there is a breaking down and a great flow of water, and you have a flood that might not occur from the same amount of snow that has existed under the conditions that always prevail in the open. So that even then the heavy foliage is not a protection against floods.

Mr. PLUMLEY. Have you studied the springs flowing out of opens and out of areas covered by trees, and found that the latter were perennial in their flow where the forests protected them, and that they have gone out when the forests went?

Professor MOORE. No; I am not a geologist.

Mr. PLUMLEY. This is water I am talking about.

Professor MOORE. Yes.

Mr. PLUMLEY. Is that geology?

Professor MOORE. Yes.

Mr. PLUMLEY. I thought that came in under the head of meteorology.

Professor MOORE. It would be more properly under the head of geology; the flow of a stream from subterranean recesses. Oh, yes, I have studied a little geology.

Mr. PLUMLEY. If you had examined it simply as a layman and had for forty or fifty years found that following the deforestation of the spruce, hemlock, and pine on the sides of the mountains and the mountain tops you had lost all of your springs through the low-water period—

Professor MOORE. That might be possible in a region of small area. It would be possible in one region and not possible in another.

Mr. PLUMBLEY. If it is a matter of fact, and you had seen that for forty years—

Professor MOORE. Oh, yes; I do not doubt your word at all; that may be all true. But it does not affect this great problem of the floods in rivers. That would be a local influence.

Mr. PLUMBLEY. No; but it would be a question of the constant inflow into the headwaters of the streams, of the waters that make up the navigable streams below?

Professor MOORE. It would have some effect, but I doubt that it would be appreciable.

Mr. PLUMBLEY. If, as a matter of fact, streams of sufficient character to carry mills—

Professor MOORE. Yes.

Mr. PLUMBLEY (continuing). Had all dried up through the summer season and gave no inflow, and that was a constant factor running away up through the mountains where these conditions existed of deforestation, would you expect it to sensibly affect the flow during the low period; I mean of navigable water?

Professor MOORE. That would depend on the character of the soil and the arrangement of the different strata as well as on the protection from sunshine of that snow blanket. If you go still further and take any forest region, it may retard the flow or entirely restrain and employ to its own uses moderate rainfalls. I have always said that the forests did restrain moderate precipitation, so much so that taking two regions, one region forested and the other unforested, you will, during the low-water periods, get a perceptible run-off from the open region and get absolutely none from the forested region; so that I account for the fact that we now find a little better low-water flow in the rivers of the Ohio basin from that fact—that the small rainfalls were broken up more by the forest's covering, and held by the thin humus in the forest and did not go down to add to the flow of the streams when they were low. Floods occur only after all surfaces, forested and unforested, are saturated, and then the flow from each is the same. You can find every phase of this question exemplified on one side or the other in small areas, and with light local showers, but we must not form general conclusions from such facts.

Mr. PLUMBLEY. I would like to have you spend some time up in the White Mountains and the Green Mountains, where this question primarily starts, and see how it would affect the flow of the Merrimac and the Connecticut, and does affect the flow of those streams down lower.

Professor MOORE. I have not discussed what data we have on the Connecticut. They may be insufficient, but I believe that all the records that are in existence will show that there has been no flood increase or flood intensity in the Connecticut River.

Mr. PLUMBLEY. I was not speaking of flood intensity, but the low-water navigation, when the water finds its limit. A stream for navigation is judged by what it is able to do in low water. That decides the real value of the navigability of a stream as a constant factor.

Professor MOORE. Of course, low water that is so low that you can not get over the sills and the bars stops all navigation, but the cutting away of the forests tends to raise the low water, as I have shown before.

Mr. PLUMLEY. Now, I understand that on the Ohio River you have introduced here a statement from a man who says that there is practically no change since the deforestation—

Professor MOORE. But you must not accept his statement as final or conclusive.

Mr. PLUMLEY. No; but it takes away all the value of it as matter upon which to base an opinion.

Professor MOORE. If that is true. I am introducing it just for what it is worth, just as I am introducing my report for what it is worth.

Mr. PLUMLEY. Then that does not answer my question.

Professor MOORE. You may find some areas in the New England States where deforestation has made some change in streams, I do not know; but that they would have any appreciable effect on a river of any such magnitude as to be navigable, or available even for lumbering purposes, or for pleasure steamers—I do not think is so.

Mr. STANLEY. Did I understand you to say that deforestation appreciably increases low water flow in streams?

Professor MOORE. What we find is a slightly increased low water flow.

Mr. PLUMLEY. If I understand Mr. Moore, he says that he has hardly enough data upon which to say that there has been any effect from deforestation to help determine that upon the Ohio River.

Professor MOORE. No; I have not said that.

Mr. PLUMLEY. I understand it is questioned by this professor, here.

Professor MOORE. Yes.

Mr. PLUMLEY. If it is a question that can be answered, as a lawyer I would suppose that the question is undecided.

Professor MOORE. I am perfectly willing to let it stand that way.

Mr. PLUMLEY. Then that passes as of no present value?

Professor MOORE. The reports that show that deforestation in the Ohio River Valley has increased floods—

Mr. PLUMLEY. Pass equally out?

Professor MOORE. Yes.

Mr. STANLEY. From what you have said to-day it appears that the data collected by the bureau with reference to the Ohio deal with maximums of low and high water?

Professor MOORE. Yes.

Mr. STANLEY. And not with the normal flow?

Professor MOORE. They deal with both.

Mr. STANLEY. Now, the thing I understand that as practical men we are most interested in is the best means to increase a stationary navigable stage, or one that is as near stationary as possible?

Professor MOORE. There is no way to do that except by locks and dams—reservoirs.

Mr. STANLEY. Well, I know that; but to what extent do your investigations throw light upon this question? Does deforestation of the areas, either of the slopes or of the heights of the mountains, affect the mean depth of a river, or a stage that is navigable, say, 3 or 4 feet? The navigator is not interested in the number of days that a river is very low, or the number of days that a river is very high; but he is interested in the number of days that there is enough water in a river to float a boat.

Professor MOORE. Yes.

Mr. STANLEY. Have your bearings and investigations thrown any light on that subject?

Professor MOORE. My report in a general way indicates that the moderate height of the river is not interfered with; my report indicates that the variation run-off from the forest area and from the area that is covered by wheat, grass, corn, or bushes, or that is plowed and broken, is not important in its aggregate result; so that the height of that stream, even the moderate flow, is probably not materially affected.

The CHAIRMAN. Are there any further questions?

Mr. LEVER. You have quoted in your report from Bellegrand. What is the title of the work?

Professor MOORE. It is from a translation by General Allen, of the Engineer Corps of the Army.

Mr. LEVER. Do you know whether either or both of these officers agree as to the importance of forests as a means of preventing erosion and aiding navigation?

Professor MOORE. No; I do not.

Mr. LEVER. You do not?

Professor MOORE. No.

Mr. LEVER. I think I read that into the record a moment ago.

Professor MOORE. Yes.

Mr. LEVER. This is written in French, and I would like to have Professor Swayne read it. I can not read very much French. Perhaps you will read it, Professor.

Professor MOORE. No; I will not read it. I can comprehend the meaning of it; but I do not wish to translate it for the committee.

Mr. LEVER. Let Professor Swayne read it, then. I want to get that in the report for the benefit of the committee.

The CHAIRMAN. What are you quoting from?

Professor SWAYNE. This is from the work that is quoted in the translation made by General Allen.

The CHAIRMAN. What is the date of it?

Professor SWAYNE. This was written in 1857, and it is quoted by those who are opposed to forestry. I do not think that our Engineer Corps will agree with this, because it is an argument against longitudinal dikes on rivers, which our Engineer Corps are committed to. In the course of this argument he brings up all these arguments that have been brought up by Professor Moore and Colonel Chittenden, that forests do not reduce the height of floods. Nobody claims that they do reduce the height of floods.

Professor MOORE. May I ask a question right there, in order to keep the record straight? Many people do claim the contrary, Professor Swayne, and I have a report of the Forestry Service in which there is an elaborate bulletin claiming the contrary.

Professor SWAYNE. I have never seen any claim that forests necessarily decrease the highest floods. It is claimed that the forests do decrease, on the average, these floods on streams, and do increase on streams the low water flow; and that rests on the two simple common sense arguments that are plain to everybody, that the forests increase percolation of the water and prolong the existence of the snows. He says:

It is not thus that we have understood those who are in favor of the system of reforestation. If we understand them as advocating the reforesting of high

slopes and uncultivable slopes, we do not hesitate to join with them; but if their exigencies are more extensive and they go so far as to advocate reestablishing on the old basis a condition of things which has disappeared, creating druidical forests in the place of modern farms with trees and grain, then we do not agree.

Of course nobody argues for that.

The CHAIRMAN. Are there any further questions to be asked of Professor Moore?

Mr. LEVER. Professor Moore, you quoted in this report from the Congress of Milan, to which you refer as the Tenth International Congress of Irrigation.

Professor MOORE. Yes.

Mr. LEVER. Is that the congress that was referred to this morning as the International Congress of Navigation?

Professor MOORE. No; I think it was the International Congress of Irrigation of 1905.

Mr. LEVER. The Irrigation Congress of 1905? Are you sure about that?

Professor MOORE. No; I am not sure absolutely, but I assume that it was "irrigation." I took the journals that came to me.

Mr. LEVER. You heard me read into the record this morning the unanimous report of the International Congress of Navigation. Do you disagree with those conclusions?

Professor MOORE. I do not remember what those conclusions were.

Mr. LEVER. I will read them. They are very short:

Opinions being unanimous upon the points that forests exert a beneficial influence—

1. Upon the consolidation of sloping grounds, by preventing the disastrous washing off of materials to the bottom of the valley.

2. Upon the formation and permanency of springs, at least in impermeable ground and on slopes.

3. On the better régime of rivers, at least at the periods of their low water and ordinary flows.

Those are the unanimous conclusions of that congress, from which, I think, you quoted in your report.

Professor MOORE. I will tell you what I quoted from that congress. There were papers presented at that congress from Germany, France, Italy, Austria, and Russia—all of them favorable to a rational system of forestry, but they all were unanimous in the opinion that forests exercise little control over either the high or the low water. I have that summary which I quoted from someone else. It is not my own summary.

Mr. LEVER. The intensity of high floods is given here by the translation.

Professor MOORE. Yes.

Mr. LEVER. What we are driving at here is, What will sustain the stream flow?

Professor MOORE. I think reservoirs are the only thing that will do it.

Mr. LEVER. Now let me ask you a question on this proposition. Suppose you have your reservoirs. I suppose that erosion goes on on a steep unforested slope much more rapidly than on a plain?

Professor MOORE. Oh, yes.

Mr. LEVER. Will not your reservoirs always be filling up?

Professor MOORE. There would be a tendency that way; but it would come from the cultivated areas in much greater proportion than from the steep slopes, because those slopes would be small in area in comparison with the cultivated areas; and in order to stop the silting it would be necessary for you to stop agriculture.

Mr. STANLEY. Is a forest to any degree a reservoir?

Professor MOORE. No; not a reservoir. No.

Mr. PLUMLEY. Is not the black forest a constant reservoir?

Professor MOORE. No; its effect is too small for it to be called a reservoir.

Mr. PLUMLEY. There is where you differ, I think, with those who have had practical experience for many years.

Professor MOORE. I am just giving my opinion.

Mr. LEVER. On that proposition you differ from Colonel Chittenden.

Professor MOORE. I do not agree with everything that Colonel Chittenden says. I agree in his general conclusions.

Mr. LEVER. Professor Moore, I think you have somewhere in your report—I can not put my finger on the page now—set out your plan of preventing erosion, and that would be to put these lands into cultivation, plowing the lands deep and covering them with grass and clover, and so on.

Professor MOORE. With grass, or with proper terracing, proper cultivation around hillsides. That is well understood to-day as a method of preventing washing.

Mr. LEVER. Have you ever traveled through the southern Appalachians?

Professor MOORE. No; I have never been there. I have crossed over from Raleigh into Tennessee once only. I have not made a study of that.

Mr. LEVER. You have no idea of the area of land that is cultivated according to that method, plowing 8 inches deep?

Professor MOORE. I have only a general idea, such as anyone might have. I lived on a farm when I was a boy and I have been in the country a good deal of my time since; I am a farmer.

Mr. LEVER. You would not advocate the proposition of putting into agricultural uses the very steep, the almost uncultivable areas in the southern Appalachians and the White Mountains; would you?

Professor MOORE. Certainly not.

Mr. LEVER. What would you do with them?

Professor MOORE. I would grow forests on them if the forests were worth the money expended to grow them commercially. I would not reforest them for the purpose of stopping erosion, because I am of the opinion that erosion from such slopes is a beneficial operation, and transports that soil down to lower levels, where it can be made use of to grow something—where it can be cultivated.

Mr. LEVER. And does that eroded surface in any way affect the navigability of streams in their lower reaches?

Professor MOORE. Any erosion from such surface or from plowed land goes to lower levels where it comes under the influence of gravity and is deposited on the areas on either side of the river; or it goes into the main stream. So far in the history of our rivers it is my opinion—I do not give this as a geologist, because I am not a geologist—we find little evidence that our principal streams have silted up

to any considerable extent. The increase in the amount of matter in suspension that the water must carry as the result of cutting off forests from steep slopes and the result of agricultural processes on such slopes and on the plains below makes a great sedimentary deposit near the mouths of rivers, and great deltas are formed. There is no question but the bed of the Mississippi River is much higher near its mouth than the surrounding country. That is the result of silting up. You may go down 2,000 feet in the city of New Orleans and bring up pieces of decayed timber that were deposited there centuries ago. But in the streams that flow swiftly we do not find so much evidence of silting. I noticed that on the Tennessee and the Ohio and the Cumberland years ago, and it was my opinion that we might have to change the location of the gauges because of the silting up of those streams, which ought to be appreciable in the course of twenty or thirty years; but as a matter of fact we have never changed the zero of any gauge on any of those rivers because of silting, and I think the engineers of the army have never been obliged to change the zero of a gauge in any of those rivers because of silting up.

Mr. STANLEY. Professor, these questions which I am asking you are for the purpose of getting at the facts.

Professor MOORE. Yes, sir.

Mr. STANLEY. Because there is no scientist who appears before the committee for whom I have a more profound respect. But is not the silting more at the mouth of the delta, or the estuary, than anywhere else?

Professor MOORE. Yes; of course, that is right. That is a good point to make.

Mr. McLAUGHLIN. Are you aware of the report of the Secretary of Agriculture published about three years ago on the subject of buying the timber lands of the Appalachians?

Professor MOORE. I never read it; no, sir.

Mr. McLAUGHLIN. As I remember, one of his conclusions is that if the forested land at the upper waters of the streams forming the Ohio River were purchased and controlled, the result would be the controlling of the depth of water at Pittsburg, and the increasing of the average depth by 2 or 3 feet. Would you agree with that conclusion?

Professor MOORE. I would first say that that report I believe to have been written in the Forestry Service. I think it was forwarded by the Secretary, as many communications are. They are prepared by the various bureau chiefs for his signature and forwarded by him, and I do not know, therefore, that it is the actual individual opinion of the Secretary of Agriculture.

The CHAIRMAN. I think it would be rather interesting to have the matter of the authorship of that report settled, and I believe we can settle it by one question to Mr. Hall. I notice Mr. Hall is in the room. He is in the Forestry Service. Can you state, Mr. Hall, who wrote the report referred to, which was issued under the name of the Secretary of Agriculture?

Mr. HALL. Mr. Chairman, my impression is that the committee is thinking of two reports. There have been two reports by the Secretary of Agriculture, one a large book sent in with the presidential message some six or seven years ago, in 1901, I believe. I will take up the two, if I may.

The CHAIRMAN. Yes.

Mr. HALL. That report was made after a trip by the Secretary of Agriculture himself to the southern Appalachian Mountains. As to who the authors were of the part which the Secretary himself signed I can not say, but I am under the impression—perhaps I had better not say that; but I will say that I am not sure. The report, however, did include papers by several gentlemen; one of them, as I recall, by one of the members of the Weather Bureau, it being upon the climate of the southern Appalachian Mountains; and there are other papers. There was a second report by the Secretary of Agriculture submitted to Congress in 1907.

The CHAIRMAN. For which a special appropriation of \$25,000 was made?

Mr. HALL. Yes.

The CHAIRMAN. I think that is the one Mr. McLaughlin referred to.

Mr. McLAUGHLIN. That is the one I referred to.

Mr. HALL. That investigation was made under the authorization of the Secretary by myself and some men associated with me, and I had a large part to do with preparing the original part of the report. The report was gone over by the Chief of the Forestry Service, and was afterwards personally considered by the Secretary himself, as I know, because I stood in his office and worked with him in connection with it, and it was to some extent modified by the Secretary, and then submitted to Congress.

The CHAIRMAN. Thank you. Are there any further questions?

Mr. PLUMLEY. I would like to ask one more question of Professor Moore.

Professor MOORE. Yes, Mr. Plumley.

Mr. PLUMLEY. Is it not nature's way to prepare alluvial valleys by having it done at a time when the mountains and valleys are covered with trees?

Professor MOORE. I would say not. The mountain tops must first, by the action of freezing and thawing, and the torrential rains, be eroded and worn down and some of the material carried to lower levels—much of it, I will say, carried to lower levels—and the mountain tops must be beaten down until there is a level place sufficient to retain some of the decomposed rock, and that forms a soil then in which trees may grow, and ought to grow.

Mr. PLUMLEY. And down all the sides of the mountains and through all the valleys that become alluvial, during the period when the earth is being prepared for agriculture, these mountain slopes and valleys were covered with trees, were they not?

Professor MOORE. Oh, I could not answer that.

Mr. PLUMLEY. Well, I am speaking now of the Appalachians, and more particularly of the eastern Appalachians.

Professor MOORE. I do not know, Mr. Plumley.

Mr. PLUMLEY. From the earliest data you have?

Professor MOORE. Oh, yes.

Mr. PLUMLEY. And the mountains and the valleys were forested, were they not?

Professor MOORE. Yes.

Mr. PLUMLEY. It was during that period that the earth was prepared for cultivation?

Professor MOORE. It was prepared before; yes.

Mr. PLUMLEY. It was prepared then in particular?

Professor MOORE. Yes.

Mr. PLUMLEY. And during all this period your mountains had been leveled at the top, and the water had gone trickling down the mountains and had been stopped by the trees, and the trees, with their roots, had broken the rock?

Professor MOORE. It is mainly the expansion of the water that breaks the rocks, by getting into the cracks and freezing.

Mr. PLUMLEY. Sure; but the very fact that the roots were there, and that the bodies of the trees were there, aided to stop the water and put it into the soil to help break up the rocks; was that not nature's way?

Professor MOORE. Yes; there is no doubt that certain forms—

Mr. PLUMLEY. Now, if we should get back to nature, we probably would create the best alluvial conditions, would we not, below?

Professor MOORE. I do not think we would improve on what we have.

Mr. PLUMLEY. You think the present form is as well adapted to take this alluvial deposit and put it around in a uniform way on the surface of the alluvial valleys as it was when the surface of the earth was all covered with trees?

Professor MOORE. Well, I would not want to answer that. I do not believe I am an expert on that particular phase.

Mr. LAMB. You admit that erosion is a good thing?

Professor MOORE. Yes; I believe that erosion, under certain conditions, is a good thing, and under other conditions it is a bad thing.

Mr. LAMB. Like other things, you can have too much of it?

Professor MOORE. Yes.

Mr. STANLEY. You spoke of the value of erosion in leveling the surface of the earth.

Professor MOORE. Yes, the mountain tops.

Mr. STANLEY. Is it not true—it has been my impression—that the debris from the mountains is dependent directly for its alluvial value upon the amount of vegetable life that exists in the area eroded? For instance, unless you have something like limestone there, which has the remains of animal life, would you get any fertilizing effect from the material eroded?

Professor MOORE. You would get some. Some eroded material has no humus.

Mr. STANLEY. Would you get alluvial soil from the disintegration of igneous rock, such as you get from the erosion of limestone rock or cretaceous rock such as is found in these mountains? Is not the value of the alluvium from streams directly dependent now upon the amount of—

Professor MOORE. Humus?

Mr. STANLEY (continuing). Humus that is contained in the debris?

Professor MOORE. It depends largely on that; I suppose largely so; yes.

Mr. LEVER. You have discussed this Forest-Service Circular No. 176, and then you have discussed the circular of Mr. Leighton, and in doing so you say that all of these data, or substantially all, have been drawn from the Weather Service.

Professor MOORE. Yes.

Mr. LEVER. I notice in this Circular No. 176 on page 5, in discussing the Potomac River and the Monongahela River and the Wateree and the Savannah and the Tennessee and a number of other rivers, they all show a tendency toward increased floods, and as you say, this tendency is shown by data taken from your office.

Professor MOORE. Yes.

Mr. LEVER. Do you controvert the conclusions reached in that circular?

Professor MOORE. I do, most positively.

Mr. LEVER. In what way?

Professor MOORE. I controvert it first on the ground that the period is too inconsequential, even if the data had been properly grouped, to justify one in drawing any general conclusions. I differ from the report, again, because they have taken gauge readings that were not floods and counted them as floods. I quote that report here on page 36 and make my answer to it on page 37. I think the investigators were honestly looking for information. I do not agree with them as to the way in which they group the data, or as to their conclusions.

Mr. LEVER. Or in the conclusions they draw from the data?

Professor MOORE. Oh, no.

Mr. LEVER. In other words, your position is that the data on this matter are too insufficient for anybody to draw a correct conclusion from them?

Professor MOORE. I take the position that very much of the data, not all—I take the position that when you get a ninety-six-year rainfall up in New England you get something that is worth considering, and a record of thirty-eight years in the Ohio Valley is worth giving serious thought to. But to attempt to determine this great problem of the effect of forests upon floods by discussing a nineteen years' record on the Potomac River, and sixteen years on the Wateree, I think is simply ridiculous.

Mr. LEVER. Here, for instance, is the Ohio River with a record of twenty-six years, the Monongahela with twenty-two years, the Savannah with eighteen years, the Allegheny with thirty-four years and the Tennessee with thirty-six years.

Professor MOORE. Yes; but I will go on record with the fact that actual floods have not been increased except by the rainfall.

Mr. LEVER. Mr. Leighton is Hydrographer of the United States Geological Survey?

Professor MOORE. Yes.

Mr. LEVER. He is a competent official, is he not?

Professor MOORE. I am not here to criticise or impeach anybody's integrity. I only claim for myself the right to express a different opinion, and to show from my data why it is that I hold that opinion.

Mr. LEVER. I do not want you to impeach anybody. I know your views, and my own.

Professor MOORE. Yes.

Mr. LEVER. What I want to do is to get from you whether this man Leighton is considered in the scientific world as a competent man.

Professor MOORE. I have not any idea but what Mr. Leighton is a competent hydrographer.

Mr. LEVER. Yes.

Professor MOORE. I believe he is so considered.

Mr. LEVER. Yes.

Professor MOORE. And I would not in any way impeach his standing.

Mr. LEVER. You would say that of Mr. Hall?

Professor MOORE. Of Mr. Hall and Mr. Maxwell both. But on the other hand, I would say that they may get results from my data that are ridiculous. I will say right here—these gentlemen may be here, I do not know them—that when they count up the moderate river stages in all these rivers for the purpose of determining a fundamental policy with regard to floods, on which action is to be taken by Congress, I would say that this report, while honestly made, may be vicious in its effects. There is no mistaking my opinion on that.

Mr. STANLEY. How about the reliability of their findings as to those moderate flood stages and the producing of them?

Mr. LEVER. That is just the point that I was about to ask a question on myself.

Professor MOORE. I think I have gone over that thoroughly before and answered all that I can or that anyone can answer on that subject. I have shown that the average height of the Ohio River has not changed. I have shown that the number of flood days is less, although right there, while my data show a less number of flood days, I say that even a thirty-eight year period is too short for us to found a fundamental policy upon. I say I do not take my own data, accurate though they are, as absolutely conclusive beyond all doubt in all these matters; much less will I take the data of fourteen years or of nineteen years, especially when in those data they are counting only moderate flows for flood flows, don't you see?

Mr. LEVER. On page 15 of your report, under the heading, The Effect of Forests on Floods, you make this statement:

I have always held to the opinion that the cutting away of forests has had little or no appreciable effect on the amount of precipitation or on the general temperature.

Is that entirely the fact? Have you always held to that opinion?

Professor MOORE. I have, yes, on the general. You will see in my report that I admit that the effect of the forest is to slightly lower temperature. You see in my discussion of Mr. Bailey Willis's paper I say there is no question but the forest does give a lower maximum temperature perceptibly than in the open, and there is a greater catch of rain over the forests, but the rainfall is not greater; the restriction of wind causes a greater catch without change in amount of rainfall. Let me say this, that my opinions are affected by the information that comes in to me as I pursue my studies. After years of study I may form an opinion that might be an evolution, and that evolution may be a gradual process.

Mr. LEVER. Then in the report I quoted once before you held strongly to the opinion that deforestation had quite a considerable effect upon climatic condition, and certainly upon rainfall?

Professor MOORE. Yes; on the restriction of rainfall.

Mr. LEVER. You have changed your opinion on that proposition?

Professor MOORE. I have.

Mr. LEVER. Let me ask you this, in that connection, this statement of yours that I have referred to was made in January, 1908?

Professor MOORE. Yes.

Mr. LEVER. Just two years ago. What data, in the meantime, have you collected which have caused you to change your opinion?

Professor MOORE. Well, I have been surveying the whole field and studying it.

The CHAIRMAN. Had you ever given any systematic study to the data you had, or to this subject generally, prior to that time?

Professor MOORE. Oh, I have been reading and studying on the problem all my life.

Mr. LEVER. And having been reading and studying for a lifetime, you made a statement as to an effect upon natural conditions, in 1908, and in 1910 you have changed your opinion about it?

Professor MOORE. Why, I would not hesitate to change an opinion if anything came along that had that effect upon my mind.

Mr. LEVER. I would like to know what that thing was that came along.

Professor MOORE. The general information that I acquired and gathered.

Mr. LEVER. No specific data you collected? Just a review of the whole situation led you to change your opinion?

Professor MOORE. No, sir. I have gone within recent times carefully into the discussion of the data and carefully into the compiling. In the last two years I have had a very careful compiling of these data for the purpose of finding if our previous conclusions were sound, and whether they could be attacked. I have reached my conclusion from a study and investigation. In the past two years I have had a great deal of compilation done.

Mr. LEVER. You would not hesitate to say, of course, either, that an additional investigation of two years might make you change your opinion again on this proposition?

Professor MOORE. I would not hesitate to say that if I could get hold of carefully, accurately made data for a period of sufficient time to justify me in changing my opinion, I would do so.

Mr. LEVER. Certainly.

Professor MOORE. But up to within a recent time I never had carefully computed the average height of the Ohio River, and up to a recent time I never had accurately counted up the actual flood stages of the Ohio River. I will say this, that in years gone by the position of the Forester seemed to me to be logical, so logical that it seemed to me it did not need any demonstration. It almost seemed axiomatic. I had not yet discussed my data. But when I began to go into my data for the purpose of proving these things, I found facts that seemed antagonistic, and I always stand by a fact if it hits a theory squarely between the eyes.

Mr. LEVER. The one thing upon which your opinion is absolutely settled is that a deforested area is more susceptible to erosion than a forested area?

Professor MOORE. A deforested area?

Mr. LEVER. Yes.

Professor MOORE. Yes.

Mr. LEVER. Of a steep slopy character?

Professor MOORE. Oh, certainly.

Mr. PLUMLEY. Would you find any fault if we took the same position when we found facts that did not agree with your figures?

Professor MOORE. Oh, I do not ask anybody to believe a word I say unless it appeals to their reason.

Mr. PLUMLEY. That is why I am compelled to differ with you, Mr. Moore.

Professor MOORE. That is perfectly right. A man would be very foolish if he went contrary to his own reason.

Mr. HAWLEY. What do you say in answer to the question Mr. Lever just asked you, if upon the removal of the forest it was replaced by a growth of underbrush or something else that would retain the moisture, it would not necessarily result in erosion?

Professor MOORE. Oh, no; you cut away the forest, and if you think you have deforested the land you have made a mistake. I am trying to clear a 20-acre tract now, and as soon as I get the brush cut down, inside of three months there is a heavy growth there from 4 to 8 feet high that exercises just as good a restraining effect on erosion as a forest.

Mr. RUCKER. Is that growth thick?

Professor MOORE. I mean the growth depending upon the character of the vegetation, 2 feet to probably 6 feet. That would probably be the result of cutting off the forest anywhere.

Mr. LAMB. Of course if you go on the mountain sides where pines are growing and burn that stuff off and then the floods come and wash the soil down into the river, that is a plain, practical proposition, and it does that thing.

Professor MOORE. I think you ought to——

Mr. LAMB. I put my experience against your theory there.

Mr. STANLEY. As I understand you, the water precipitated finds its way, a great amount of it, with the exception of a very small amount, into the streams sooner or later?

Professor MOORE. Yes.

Mr. STANLEY. And the amount of the flow in the streams of water to start with is dependent upon the amount of precipitation and upon that alone?

Professor MOORE. The variation in the flow of streams depends upon the precipitation and practically upon it alone; I will not say absolutely, but practically.

Mr. STANLEY. And if the precipitation is the same the average amount of water discharged by the river will be the same?

Professor MOORE. Yes.

Mr. STANLEY. In other words, your average readings will remain the same?

Professor MOORE. Yes.

Mr. STANLEY. But will not your average readings be the same for a year whether it is a part of the time at zero and a part of the time at flood heights; or, if these readings, should a great many of them remain above zero and many of them below the very highest water, or below a flood stage, it would make no difference in your general result, would it, if the precipitation was the same for a given area or era?

Professor MOORE. I could not answer that. I would rather take time to consider that.

Professor SWAYNE. Mr. Chairman, I would like to ask Professor Moore one or two questions, with your permission.

The CHAIRMAN. If you will make them just as brief as you can.

Professor SWAYNE. I would like to get perfectly clear several things he has discussed.

The CHAIRMAN. Very well.

Professor SWAYNE. Please tell us what the precipitation depends upon—the rainfall?

Professor MOORE. It depends on the moisture content; the temperature and the movement of the temperature.

Professor SWAYNE. The moisture in the air and the temperature and the movement?

Professor MOORE. Yes.

Professor SWAYNE. That is perfectly plain. Now, these meteorological phenomena we are discussing—rainfall, flow of streams, and so forth—do they vary very greatly from year to year; the percentage of the rainfall that flows off and all these meteorological phenomena, vary very greatly from year to year?

Professor MOORE. They vary with the precipitation.

Professor SWAYNE. The precipitation varies very greatly from year to year, and all the other phenomena therefore vary greatly; and even independent of the amount of precipitation the other phenomena would vary?

Professor MOORE. Yes.

Professor SWAYNE. They go by long cycles, do they not, and it takes a long series of years to determine any permanent change?

Professor MOORE. When you say they go by long cycles, I would like you to explain what you mean.

Professor SWAYNE. Are there not long cycles of change? If there is any change, it is not a sudden change?

Professor MOORE. If there is any change, I would say it is a slow mutation of climate. Undoubtedly we are still in the ice age, and the world is slowly growing warmer and dryer all the time.

Professor SWAYNE. If you wanted to find out whether there was a change in rainfall, it would take a long series of years to determine it?

Professor MOORE. Yes; and not only that, but a very careful recording of the rainfall data. One of the most difficult things to get is an accurate rainfall reading, as I have shown in my report. Any change in the environment, the direction of a building, the growth in size of a city, any change in the environment may vitiate the data for purposes of comparison.

Professor SWAYNE. And the same with other meteorological phenomena, the flowing of floods, and so forth; you say they depend on the precipitation?

Professor MOORE. Yes.

Professor SWAYNE. And they vary by long series of years?

Professor MOORE. It takes a long time, a very long period, to get an appreciable quantity.

Professor SWAYNE. To get an appreciable quantity?

Professor MOORE. Yes; and I think so long that within the authentic history of the world there has been no appreciable change, fundamentally, in the climate of large areas.

Professor SWAYNE. I am not speaking of the total climate, but of the questions of rainfall and flow of streams, and so forth.

Professor MOORE. Yes.

Professor SWAYNE. Exceptionally high floods occur at longer periods than moderate floods, do they not?

Professor MOORE. I would not want to answer that offhand. Two or three years right in succession may have abnormally high floods, and then there may be several years with practically no floods.

Professor SWAYNE. You do not have floods like the one in the Seine every year or every ten years?

Professor MOORE. No; but there were greater floods in the Seine before the valley was cleared of forests.

Professor SWAYNE. By the way, I do not believe you have any record of the flood of 1853?

Professor MOORE. No; I only have that from statements that have come to me.

Professor SWAYNE. You say you think you have proved here that the flow of the Ohio River has not changed, or, if anything, that it has increased at the low-water period?

Professor MOORE. Except as slightly modified by the precipitation, it has not changed.

Professor SWAYNE. And on what do you base that?

Professor MOORE. On rainfall records.

Professor SWAYNE. On the rainfall records?

Professor MOORE. And on the gauge readings.

Professor SWAYNE. On the gauge readings?

Professor MOORE. Yes.

Professor SWAYNE. You have discussed the gauge readings?

Professor MOORE. Actual readings.

Professor SWAYNE. Are you aware that the flow of the stream with the same gauge readings may be very much greater at one time than another; that the gauge may stand at the same, and yet the river may be discharging 50 per cent more than it was at another time when the gauge reading was the same?

Professor MOORE. I am aware that the volume may be greater, but I have no data on that fact.

Professor SWAYNE. Then you are not acquainted with the Humphreys and Abbott reports of fifty years ago on the floods in the Mississippi River?

Professor MOORE. That has not been presented here.

Professor SWAYNE. It has not been presented here, but it is well known to every scientist, is it not, that the amount of water discharged by a stream does not depend on the gauge readings?

Professor MOORE. The sectional discharge may vary with the same gauge readings.

Professor SWAYNE. Then, if you have based your theory on the gauge readings, you have not proved anything, have you?

Professor MOORE. Yes, I have; for the reason that your variations through a period of years will probably equalize themselves.

Professor SWAYNE. What is the reason that a stream may discharge more at one time than another with the same gauge reading?

Professor MOORE. Wait a minute. I have not discussed this matter of sectional discharge in my paper, and I decline to discuss it with you.

Professor SWAYNE. You have not discussed it?

Professor MOORE. I have not discussed it in my paper.

Professor SWAYNE. Then you admit that you have not proven that the flow has changed?

Professor MOORE. I have discussed the flow of the river not from the standpoint of hydrography, but from that of hydrology. I have taken the hydrology of this problem and not the hydrography, because I do not pretend to be an hydrographer.

Professor SWAYNE. No; but I want to get at what you claim to have proved. You stated that you had proved conclusively that the flow of the streams had not lessened.

Professor MOORE. I said that I believed I had.

Professor SWAYNE. I understood you to say that you had proved is conclusively in this paper, and what I wanted to bring out was that you had based your proof on the gauge readings, and that the gauge readings were no proof of the flow of the stream.

Professor MOORE. They are proof of the height. Why does not some one bring in a paper to controvert mine, and to show what they believe to be the facts?

Professor SWAYNE. Let us see, now. Is it not a fact that the reason why a river may discharge more at a certain time than at another with the same gauge readings is the fact that the slope may be greater, the slope of the surface at different times? Is not the flow of the stream dependent not only upon the height of the water, but upon the slope of the surface?

The CHAIRMAN. In order that we may understand that, let me ask you a question. Do you mean to say that the same river may be discharging more water at the same gauge reading at one time than at another?

Professor SWAYNE. Exactly; 50 per cent more. I have not looked that up lately, but that is as I remember it. This has simply suggested itself to my mind from this discussion. In the report on the flood in the Mississippi River in 1851 it was shown that the gauge readings were not proof of the amount of the discharge. When a flood comes the front of the wave of the flood is always steeper than the back, and when the flood is rising there is more water going through than at the same gauge reading when the summit of the flood is past. Now, it follows from that, that even although your gauge reading may remain constant, your floods may be increasing.

Professor MOORE. But you do not know it, as the river is no higher.

Professor SWAYNE. And those of us who believe in the effects of forests believe, and are convinced from fundamental, simple, plain, common-sense reasoning which nobody can impugn, that the effect of deforesting is to make the water gather more suddenly into the streams, the floods are more sudden, and therefore it is reasonable to suppose, and you would be justified in saying, that the floods had been increasing although your gauge readings would not show it, if you mentioned the same gauge readings on certain days.

Professor MOORE. I dispute you. Have you any data to show that?

Professor SWAYNE. That has been demonstrated by Humphreys and Abbott.

Mr. HAWLEY. I would like to ask you just one question. You measure a flood by measuring the flow of the river?

Professor SWAYNE. Yes.

Mr. HAWLEY. During what period?

Professor SWAYNE. By floats at certain times in several years I found that at certain heights the river might be discharging more than at other times, and yet I would have the same gauge readings.

Professor MOORE. May I ask you a question there?

Professor SWAYNE. Yes.

Professor MOORE. If it be granted that the sectional discharge of the river has changed without the height changing, then the change in sectional discharge has not produced any injurious effect, or any effect that has harmfully demonstrated itself one way or another?

Professor SWAYNE. If it has not changed the height of the surface flow as the result of that you will not find any more days of flood, and yet you may have the floods more sudden and violent than they have been in previous years.

Mr. HAWLEY. Would not that necessitate an additional amount of precipitation on the watershed?

Professor SWAYNE. No, sir.

Mr. HAWLEY. If you had a greater discharge in the same number of days, how would you get it?

Professor SWAYNE. Yes; a greater precipitation and more sudden discharge of the precipitation in the river. That is what we claim is the effect of deforestation, that it gathers the water more suddenly into the stream and the rivers rise and fall more suddenly, and for that same reason the low water is kept up longer.

Professor SWAYNE. Now, Professor Moore, you said that it took a long series of years to establish these things. Let me quote from your report. You say here on page 16:

All of these problems could be definitely settled beyond the possibility of argument if we had accurate river gaugings from day to day and year to year—

Professor MOORE. That is correct. That we have not got, but the foresters claim the whole problem is settled in this flow.

Professor SWAYNE (continuing reading):

together with a full knowledge of the rainfall and of the proportion of the wooded to cleared areas, data that unfortunately we do not have. We must, therefore, reason empirically.

Now, if that is the case, is it not the fact that your figures do not prove anything?

Professor MOORE. No, sir.

Professor SWAYNE. That is the conclusion I draw; that they do not prove anything, because they are based relatively on only a few years.

Mr. STANLEY. One question, to throw light on what you have been saying. Have you any data as to the velocity of the stream at various stages?

Professor MOORE. No, sir. Professor Swayne, I say there that I wish this whole problem to be thoroughly discussed and investigated, and I emphasize the fact of the shortness of data used to settle some phases of it, because of what appear to be positive conclusions reached by the foresters and the people on the other side. But I do say for the period I am discussing, the thirty-eight-year period, the average height of that river—

Professor SWAYNE. But not the flow.

Professor MOORE (continuing). Has not changed.

Professor SWAYNE. But not the flow.

Professor MOORE. I do not know what the sectional discharge is. That does not concern this problem, so far as I understand. If you have more water passing and do not know it, it does not affect navigation, because you can carry as much freight across a bar or a sill as you ever did.

Mr. PLUMLEY. If you send your water all down in a bunch, you will not have it afterwards, will you?

Professor SWAYNE. If the floods are of greater velocity, they carry down sediment; more, that is, with a certain number of days with a certain gauge reading. Now, we are trying to inform ourselves not with respect to the extreme floods, but the average flood on which navigation depends; yet, on the extreme floods may not results be obtained from a short series of years? If you are going to discuss a short series of years, it is certainly not fair to confine yourself to changes that take place only once in a generation, perhaps; and therefore are not Mr. Hall and Mr. Leighton justified in taking not the extreme flood stage in order to find out the average flow, and not extreme flood which occur very seldom? Of course nobody claims that extreme floods are changed by forests.

Professor MOORE. I will answer that by saying that a flood is either a flood or it is not a flood.

Mr. STANLEY. I want to ask you right there—the carrying power of water depends on the power of the velocity, does it not?

Professor MOORE. Yes, sir.

Professor SWAYNE. Do you think forests increase evaporation?

Professor MOORE. That will have to be answered in a qualified way. Forests undoubtedly increase the evaporation of a moderate shower by breaking up and presenting a greater surface to the air, but when your forest area becomes saturated and the open belt becomes saturated, long experience would show that the total evaporation from an open area in a year is greater than from an equal area in a forest.

Professor SWAYNE. That is not the question. I want to know whether a given area in forest evaporates more in a year than a corresponding given area, a square mile or an acre, whatever it may be, in the open.

Professor MOORE. That is a complicated problem. I could discuss it with you, but unless the chairman wants me to, I will not.

Professor SWAYNE. Is it not true that a forest area evaporates more than an open area?

Professor MOORE. It depends on what you mean by evaporation, whether all over the forest or from the surface under the forest.

Professor SWAYNE. No; I have described what I mean, the evaporation from 10 square miles, or 100 miles square of ground, including whatever is on that ground. Is not the evaporation from a forested acre more than the evaporation from an open area of an acre? Does not the tree evaporate and give off moisture?

Professor MOORE. The tree is transpiring all the time; but I think a number of investigations have shown that the transpiration—I will say the employment of water—by the plant itself is much greater than that of an equal area in forest; but that is a complex question on which we might argue for a month and never reach a conclusion.

Professor SWAYNE. I have authorities here which show just the reverse.

Professor MOORE. What are you driving at, then? Tell me what you are talking about, so that I can answer you.

Professor SWAYNE. If the forest evaporates more than the open ground, is it not reasonable to suppose that it may increase the rainfall? You have said that the forest increases the evaporation in the atmosphere.

Professor MOORE. Yes; at times.

Professor SWAYNE. If it increases the evaporation, it is certainly not unreasonable for some to think the forest increases the rainfall; but that is not anything we care anything about.

Professor MOORE. I would be very glad to answer that, if you wish me to. Your forest lowers slightly the temperature. The evaporation in the open, from a given open area, is greater for the year through than it is from the forest area. I will answer you positively on that.

Professor SWAYNE. You will not be sustained by the authorities I have.

Professor MOORE. Well, suppose I take your point of view and say that the evaporation from the forest area is greater, as well as the lowering of the temperature. Take your own argument, that the evaporation is greater and that the temperature is slightly lower; then you say lowering the temperature brings you nearer the dew point, adding to the moisture content, brings you closer to the saturation point; and does it not seem reasonable that this forest will bring more rainfall? I say no, because if you will go out and take a hygrometric observation in the midst of a shower of rain, only one time in a hundred will you find that the air is saturated. Now, if your condensation takes place higher up, and if the forest does not bring the air to the condensation point, I can not see that it tends to increase the rainfall.

(At 1 o'clock p. m. the committee adjourned.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., Wednesday, March 2, 1910.

The committee met at 10.30 o'clock a. m., Hon. Charles F. Scott in the chair.

The committee thereupon resumed the consideration of the bill (H. R. 11798) "To enable any State to cooperate with any other State or States, or with the United States, for the protection of the watersheds of navigable streams, and to appoint a commission for the acquisition of lands for the purpose of conserving the navigability of navigable rivers."

STATEMENT OF MR. GIFFORD PINCHOT, OF WASHINGTON, D. C.

The **CHAIRMAN.** Mr. Gifford Pinchot, formerly Chief of the Forest Service, is in the committee room this morning at the request of some gentlemen who are interested in matters pending before the committee. The committee has heard from Mr. Pinchot so often on the subject of forest regulation of streams that I presume it will not be

necessary to take very much of his time. I will therefore ask the committee to hear him first, as he is anxious to get away; and I will turn his examination over to Mr. Lever.

Mr. LEVER. Mr. Pinchot, I should like to have you give your opinion to the committee as to the commercial feasibility of the project involved in the Weeks bill, and whether or not you believe that in the course of time, say, five or ten years, if we acquire the forests in the Southern Appalachians and White Mountains, those forests will be self-sustaining, if not returning a revenue to the Government?

Mr. PINCHOT. My answer to that is, that on the basis of a good deal of careful examination of the situation, and personal knowledge of considerable areas in the southern Appalachians and in the White Mountains—less in the White Mountains—I have been well satisfied for a long time that this would be a commercially profitable project within a reasonable time.

Mr. LEVER. Is there any reason known to you why the present national forests are not self-sustaining?

Mr. PINCHOT. So far as the timber cutting is concerned, they are much more than self-sustaining. The reason they do not pay, as a whole, is that so much is done which would not be done by private owners if they owned these lands. That is, vast quantities of timber are given away; grazing is allowed upon the forest lands at very much less than its market value, and so on.

Mr. LEVER. Do you think it would be possible, by any change in the system of the management of the present forests, to make them entirely self-sustaining, if not revenue-bearing, at this time, if we wanted to do it?

Mr. PINCHOT. There is no question about it.

Mr. LEVER. And you feel, also, that if we acquired the southern Appalachian and White Mountain forests, by inaugurating a proper policy there would be no doubt but that they would be made self-sustaining, if not revenue-bearing, in the course of a few years?

Mr. PINCHOT. There never has been any doubt in my mind as to that, and there is none now.

Mr. LEVER. Do you happen to know anything especially about the forestry system in vogue at Biltmore, N. C.?

Mr. PINCHOT. Yes; I inaugurated that system.

Mr. LEVER. I recall seeing, in going over that farm, a hillside covered with pine, said to be the growth of about ten or twelve, or perhaps fourteen years. Do you know whether or not that is producing a revenue now?

Mr. PINCHOT. I am sorry to say I do not. I have not been in close touch with Biltmore for a number of years.

Mr. LEVER. In a general way, do you know whether or not the Biltmore forests are revenue-producing?

Mr. PINCHOT. Oh, yes; the Biltmore forests have produced revenue for a long time.

Mr. LEVER. And it is of recent origin, too? It is not very old?

Mr. PINCHOT. It includes both new forests and old timber lands.

Mr. HAWLEY. Mr. Pinchot, do you know about what percentage of revenue upon the investment those forests return during the year?

Mr. PINCHOT. No; I do not. As I say, I have not been in close touch with Biltmore for a number of years.

Mr. LEVER. You have read Professor Moore's report?

Mr. PINCHOT. I have not read it all. I have dipped into it here and there.

Mr. LEVER. You are fully convinced, after your years of experience with forestry problems, that there is an intimate relationship between the forest and stream flow?

Mr. PINCHOT. I am thoroughly convinced as to that, both on the basis of figures and on the basis of personal experience in the woods.

Mr. LEVER. And that wherever there is deforestation the result is high floods and low waters?

Mr. PINCHOT. The effect of deforestation on floods and low waters seems to be entirely proved. I do not know whether or not it has been brought out before the committee that Mr. Moore's principal argument, as I judge from a cursory examination of his report, is to the effect that forests can have no influence on high and low water because in the Ohio basin the total run-off during successive years is proved to be the same. Of course that is as much of an argument as it would be to say that it is impossible that a day in December should be shorter than a day in June, because a careful examination shows that each of two years has just exactly the same number of days in it. In other words, it has nothing whatever to do with the case.

Mr. LEVER. Just one further question, Mr. Pinchot, on a different line, and then I shall be through: Is it a fact that the forests in the southern Appalachians, on account of the peculiar character of the trees there, are more valuable than the forests of the national domain at the present time, on account of their proximity to the market, and the like of that?

Mr. PINCHOT. Oh, they are much more valuable at the present time, because they are nearer to the market. In other words, the average price per acre of the timber in the Appalachians is very much higher than the average price per acre of the national forests.

Mr. LEVER. So that you could easily deduce the conclusion that if the present national forests can be made self-sustaining and revenue bearing, it follows certainly more strongly as to the southern Appalachians?

Mr. HAWLEY. That would depend upon how much we had to pay for the forest originally to acquire it.

Mr. PINCHOT. Answering Mr. Hawley, it follows a fortiori (if that is the proper legal term), and the whole of European experience shows that the more valuable a forest is, the more the gross expenditure upon that forest, the larger the net revenue.

The CHAIRMAN. Your deduction that the Appalachian forests could be made profitable is based upon the proposition that we shall acquire commercial timber lands, is it not?

Mr. PINCHOT. The answer to that is that if we acquire commercial timber lands, the time of a paying revenue will come sooner than if we acquire lands which bear immature timber or lands that have to be planted; but at the end of a reasonable time in each case it certainly will be self-sustaining.

The CHAIRMAN. The Weeks bill contains a provision that the land required may be bought with the reservation of the timber to the owner under certain restrictions.

Mr. PINCHOT. Yes.

The CHAIRMAN. Is it your judgment that under the operations of this bill we would buy very much land containing commercial tim-

ber, or, as a practical proposition, desiring to get just as much land and the control over just as much land as possible for just as little money as possible, that the commission would in every case give the owner of the timber the right to take that timber off rather than pay him twenty or thirty or fifty dollars an acre for it?

Mr. PINCHOT. As I understand, the bill provides that that timber is to be taken off under the regulations of the commission. That means that there would be left on the land a great deal of young timber just under the merchantable size, in good condition, and that within a very few years, with the growth of the timber on the one side and the progress of demand, the ability to use smaller stuff, on the other, that timber would be merchantable and valuable to sell.

The CHAIRMAN. What limit would be placed upon the time?

Mr. PINCHOT. It depends upon the character of the timber; but we have frequently found second cuts in fifteen years in different kinds of timber.

The CHAIRMAN. You stated that the national forests are paying now, so far as timber cutting is concerned?

Mr. PINCHOT. That is to say, that the sale of timber much more than pays all expenses connected with the sale of timber.

The CHAIRMAN. Do you have to include any of the grazing fees in order to make that statement true?

Mr. PINCHOT. No. The timber alone pays much more than the expense of selling the timber.

Mr. LEE. Much more?

Mr. PINCHOT. Much more.

Mr. HAWLEY. How much more?

Mr. PINCHOT. I have not the exact figures in my head, but I can easily supply them to the committee.

Mr. LEE. I wish you would.

The CHAIRMAN. The Weeks bill expires by limitation in five years. Would you consider that a long enough time to test the theory upon which the bill is framed?

Mr. PINCHOT. It does not seem to me that the theory upon which it is framed would be tested in that way, if I understand the bill. I have not read the latest draft of the Weeks bill. I am only basing my answers on previous knowledge of the measure. We might find in certain regions that there was an increase in the value of stream conditions in five years, though I am not sure as to that. But I am entirely satisfied that public opinion inside of the five years would have accepted the acquisition of these lands as a good thing.

The CHAIRMAN. The new bill provides for a total expenditure of \$9,000,000. Is it your judgment that the amount of land which we could acquire for that money in any given watershed, even assuming everything that is claimed for the control that deforestation has over the regimen of streams, would be sufficient to have any material influence?

Mr. PINCHOT. I think it would, decidedly, because you now have a rapid deterioration going on which the purchase of that land would check and begin to improve.

The CHAIRMAN. Have you ever had occasion to look into the work of army engineers in charge of river improvement?

Mr. PINCHOT. Yes.

The CHAIRMAN. Do you consider their judgment as to the best means and methods of maintaining the navigability of rivers to be of value and importance?

Mr. PINCHOT. I consider them to be of value and importance inside of the sphere in which they work. The army engineers have always limited themselves strictly to engineering questions and have avoided the consideration of such other matters as this forest question. I think now, and I have for a long time thought, that the army engineers made a serious mistake in attempting to separate the improvement of navigation in the streams by engineering methods from other methods of stream control.

The CHAIRMAN. If any particular engineer should say to this committee that he had given the question careful attention with a view to employing these means, if they are advisable, and had studied the influence which the deforestation of the watershed might have upon the regimen of some navigable streams, and had reached the conclusion that there was not a sufficiently substantial connection to warrant the expenditure of any funds, would you think that the committee was warranted in giving any consideration to his judgment?

Mr. PINCHOT. I think the committee would be warranted in giving consideration to it, but I do not think that the committee would be warranted in acting on it, because I should think he was mistaken.

The CHAIRMAN. Do you know of any case where river engineers have used forestation as a part of their general plan for maintaining the navigability of streams?

Mr. PINCHOT. In France the two services of waters and forests are united under one head, or were for a long time united under one head, and my understanding is that the consensus of opinion of the scientific men of the world is substantially unanimous in favor of there being a relation between forests and stream flow.

Mr. LEVER. Was not that fact brought out in the Congress of Navigation at Milan in 1905?

Mr. PINCHOT. That is my understanding; yes.

Mr. HAWLEY. Mr. Pinchot, yesterday the question was raised as to the amount of deforestation that had taken place in the Ohio watershed within recent years, and there seemed to be no definite knowledge on the subject. Have you investigated it?

Mr. PINCHOT. I have no statistical knowledge on the subject, but I know the population has increased rapidly in the Ohio watershed, and I infer that the deforestation, as usual, has kept pace with it.

Mr. STANLEY. Mr. Pinchot, the reports of these engineers seem to indicate that deforestation has not prevented extremely low waters, nor materially affected the occurrence of phenomenal floods. Professor Moore, in his statement yesterday, and his previous statement before the committee, demonstrated, to my mind at least, that extremely low waters and extremely high waters were alike due to meteorological conditions—to abnormal droughts and abnormal precipitation. I have heard nothing from the engineers, so far, touching the question of the effect of forestation, not upon abnormally low waters or abnormally high waters, but upon continuous flow of the stream.

Is it possible that the abnormal condition in the river, as to which you have such a plethora of statistics, could be due to abnormal precipitation, or the lack of it, and that the continuous flow of

the stream could be affected by reforestation, or by the maintaining of these forests, either by purchase or otherwise, and that that matter (which I regard as very vital to this committee) could have escaped the attention of these engineers? Do you know whether that matter has been handled at all by the engineers or not?

Mr. PINCHOT. I do not recall the discussion of the engineers with sufficient accuracy to answer that question; but it is perfectly clear that if a watershed has for a year or two, or for a series of years, a very much decreased rainfall, that must show in the flow of the stream. The forest does not settle the whole business, but it modifies it; and its influence, as shown by the figures, as I understand it, is very largely in just exactly the way I have stated.

Unless it is to be printed otherwise among the hearings of the committee, Mr. Chairman, since Colonel Chittenden's statement was printed, I should like to have my reply included as part of my testimony, if that is a fair thing.

The CHAIRMAN. Was it not included in the hearings of two years ago, or a year ago?

Mr. PINCHOT. Not that I recall.

Mr. LAMB. I do not think so.

The CHAIRMAN. Without objection, that order will be made, unless we find it already included in the hearings.

Mr. STANLEY. Mr. Pinchot, what has been your observation, and what is the result of your inquiries otherwise than from personal observation, as to the effect of forestation upon the continuous flow of a river, upon maintaining a deeper mean depth for a given length of time?

Mr. PINCHOT. My understanding is that the effect is distinctly favorable.

(The paper above referred to by Mr. Pinchot, and which he requested to have included as a part of his statement, is as follows:)

DISCUSSION OF GIFFORD PINCHOT ON ARTICLE OF COL. H. M. CHITTENDEN.

In discussing the influence of forests on stream flow it is unlikely that we will ever have a better statement, in certain respects, of the case against the forests than that which Colonel Chittenden has made. It has been restated time after time under different conditions and by writers of different nations. This is, perhaps, the best statement ever made in America; therefore it is particularly important, as far as facts are known, that the discussion should be as complete as possible.

The essential point to be considered in the discussion of the relation of forests to stream flow is this: What are the functions of the forest floor in the distribution of fallen rain?

Colonel Chittenden quotes at some length from the testimony of the speaker before the House Committee on the Judiciary, given February 27, 1908, as follows:

"I have in my hand here a photograph of a denuded hillside. After the forest has been removed rain falls on that hillside and runs off rapidly, as the water I drop upon the photograph does now, and disappears instantly [illustrating]. If, on the other hand, I place a forest cover on the hillside, that is exactly analogous in texture and effect with this piece of blotting paper, and drop the water slowly upon it, we would find that, instead of running off slowly at the bottom, the water is held [illustrating with blotting paper]. Part of it runs off, but as soon as the absorbent quality of the paper or the forest floor has time to take effect the water is kept and drips gradually for a considerable length of time off the hill into the stream. This is an exact illustration of the way in which the forest controls the stream flow on that hillside."

He continues:

"Mr. Plachot should have completed his illustration. He should have continued to sprinkle the paper long enough and heavily enough to have saturated the paper completely, in order to show that the water would then flow from the paper as rapidly as from the uncovered area; and he should then have explained that this condition represents what always happens in the forest in times of great flood. Then he should have sprinkled the paper intermittently in small quantities, and at such long intervals that the warm air of the room would evaporate all of the absorbed water, and that none whatever would flow away. He should then have explained that this condition represents what always takes place in the forest in times of great drought."

It is unfortunate that Colonel Chittenden should have stopped his quotation where he did. The paragraph continues unbroken:

"The water which was in this piece of blotting paper on that steep slope, remaining on the surface in this way for a considerable length of time, has an opportunity to run down into the soil, which is made permeable on the surface by the decay from the trees. One of the best-known effects of the humus under a forest is to render the top layer of the soil permeable, and therefore to allow the water to sink into this forest reservoir. Experiments made with the greatest care show that even a moderate bed of humus is able to hold some five times its own weight of water, and the water, being retained in that way, sinks gradually into the ground, and in this way the streams, instead of being made torrential, are made to flow much more regularly during the summer months. In other words, the effect of the forests, theoretically, from this experiment, should be to diminish floods and maintain the low-water supply."

The speaker, on the preceding page of his testimony, had already explained the function of the forest and the purpose of his illustration as follows:

"The effect of a forest on a steep slope is to cover that slope with leaves, rotten and half-rotten sticks, and other mechanical obstructions which prevent the water which falls upon that slope from running straight down below as rapidly as it would otherwise. In this connection it has, in the second place, the effect of permitting the water which falls on that slope, instead of rushing off rapidly, to sink into the mountains."

"Now, the mountains are substantially great reservoirs of water, which can not operate unless they are renewed from time to time by the rain that falls upon them; and the rain that falls upon them can not get into the mountain reservoirs unless the surface of these reservoirs is in an absorbent condition. I can illustrate that to the members of the committee in a moment with a glass of water and a piece of blotting paper, as a definite illustration."

The illustration quoted above then follows.

Unfortunately, Colonel Chittenden has failed to gather from these statements what seems to the speaker to be their obvious meaning.

The illustration used is a fair description of one, but only one, of the essential functions of the forest floor, and due notice was given to that effect. The forest floor offers a physical obstruction to the rapid escape of water over the surface and thus itself provides to some extent a small storage reservoir. Colonel Chittenden admits this influence for average conditions; indeed, it is a matter of such common observation as to be indisputable. The practical value of this influence may be little or much, depending on the character and amount of precipitation and the thickness of the undergrowth, decaying litter, and humus on the ground.

There is, however, another function of the forest floor which in practical value far surpasses this one. The forest floor acts on the soil itself to multiply its absorptive capacity. The humus, which by natural action is being constantly mixed with the upper layers of mineral soil, greatly increases its receptive and retentive power, while the deep penetrating roots also open passages through which water readily passes into the great reservoir of ground water.

That Colonel Chittenden has failed, however, to consider this function is evident throughout his discussion. In giving an illustration he says (p. 247): "Consider an inclined-plane surface, practically impervious to water." When it is understood that under the forest the surface is very far from impervious, and that, on the contrary, it is absorbent in a high degree, the argument is seen to be fallacious.

Failing to note this function of the forest floor, Colonel Chittenden misses entirely the greatest influence which the forest exerts on fallen moisture—that of changing surface drainage to underground drainage and of replenishing the great underground reservoir from which the springs and streams are fed.

What is the importance of ground storage, which is so lightly passed over? Professor King has found that ordinary soils have a capacity of from 4 to 5 inches of water per foot of depth, or even more.^a Ground water extends to a considerable depth. Considering the earth masses which lie above the stream levels in mountainous regions, one may form an idea of what ground storage means to the permanency of stream flow. The ground water is constantly in motion, is replenished entirely from the surface, and is easily disturbed by any change in surface conditions.

In certain regions where there is a very thick humus, reaching occasionally, as in the Adirondacks, a depth of 3 feet, it has an important storage capacity; but the capacity of the humus is always insignificant compared with that of the ground. The mountains themselves are the chief reservoirs, and the principal function of the forest, so far as water is concerned, is to keep the surface soil permeable, so that these reservoirs of ground water may be regularly and bountifully replenished. When the importance of the forest to ground storage is once realized, a very large part of Colonel Chittenden's argument is seen to rest on a fundamental misconception.

While admitting that for average conditions the forest bed has some retentive influence, the author hastens to say emphatically that "it is not true for extreme conditions—great floods and excessively low waters" (p. 247).

He further says (p. 249):

"When a period of heavy storms occurs, spreading over a great area, continually increasing in intensity, the forests, by retaining some portions of the earlier showers and paying them out afterwards, do produce a general high condition of the river which may greatly aggravate a sudden flood arising later from some portion of the watershed."

This curious conception seems to have taken root: Assuming, for example, that the humus is able to hold 1 inch of rainfall; then, when a later storm of 4 or 5 inches comes on, not only the 4 or 5 inches of the storm runs into the streams, but also the 1 inch which was there before. Thus the storm itself would have destroyed the storage capacity of the forest floor; an assumption which doubtless Colonel Chittenden will repudiate at once, when his attention is called to it.

The speaker was quoted as saying that the increase of rainfall due to the forest is about 10 per cent. That figure was taken from the estimate of Doctor Ebermeyer who, perhaps, has studied the influence of mountain forests on precipitation as carefully as anyone else.

The theoretical argument is overwhelmingly in favor of the contention that mountain forests do cause rain; and a reasonably correct view of that contention may be reached by taking an extreme case.

Take a heavily wooded watershed, rising from the sea, as for instance in California, with prevailing on-shore winds during certain seasons. There are two things which lead one to suppose theoretically that the rain which does fall, under these conditions, should fall. One is the progressive cooling due to the air being forced into a higher altitude, resulting in a change in the amount of water vapor which the air will hold. The other is the fact that over the forest there exists a comparatively cool stratum of air, for some distance up, as has been ascertained by definite observations. We should, therefore, expect that a rain cloud, passing from the sea over such a mountain range, would be inclined to drop its rain, first, because it was forced to cool itself by rising in height, and, second, because it met cool air above the forest. What would be the case if that same slope were deforested? The same influence of height would be observed, but, instead of the cool air above the forest, there would be a body of heated air rising from barren rocks and slopes, the whole effect of which naturally would be to prevent the cooling, and so to discourage precipitation.

This extreme case gives the argument as to the effect of mountain forests in causing rain. Many observations, some favorable, some unfavorable, and some neutral, to this theory have been taken all over the world, but the best prevailing opinion of the men who have studied the matter most carefully seems to be that an effect of the forest on rainfall does exist, and that it increases rapidly with the altitude at which the forest grows. However that may be, the influence of the forest in causing rain, whatever it may be, is a matter of comparatively small importance compared with its influence upon the distribution of water after it reaches the surface.

Colonel Chittenden has made an unfortunate choice in comparing the floods of March 17 to 26, 1907, in Puta Creek and the American River, California. His

^a F. H. King, Nineteenth Annual Report, U. S. Geological Survey, Part II.

figures of precipitation for the American watershed on the east are approximately a correct average of the various gauging stations of the watershed. But his average precipitation of 22.7 inches for the watershed of Puta Creek was taken apparently from only two stations, both on the extreme summit of the Coast Range. One station is not on the watershed of Puta Creek at all, but across the main divide of the Coast Range on the west or rainy side, and the other is just inside the watershed, but at its highest point. The larger part of the watershed which lies below is wholly neglected. Figure 16 is a diagram of these two watersheds.

Those who are familiar with California understand that the rain clouds from the sea come to the crest of the Coast Range with a considerable burden of water vapor, and drop it rapidly before and after reaching the crest; as the clouds pass eastward over the Sacramento Valley the rainfall diminishes with great rapidity.

The other rainfall stations on Puta Creek watershed or in its neighborhood have been given their due weight, and the results have been worked out in two ways. One is by simply taking the arithmetical average of the stations, from which we get the following results: Puta Creek, instead of having 22.7 inches of rainfall, has 9.44 inches; while the American River has 14.6 inches, as given by the author. Calculated in this way, it appears that although the rainfall on the timbered American River watershed—and a very much steeper watershed—exceeded that on the Puta Creek watershed by 55 per cent, the run-off exceeded that of the Puta Creek watershed by only 23 per cent.

Calculating by isohyetal lines, we get, instead of 22.7 inches on the Puta Creek watershed, 10.89 inches, with the same result, or 14.69 instead of 14.60 inches for the American River watershed. From these figures the rainfall on the American River watershed exceeded that on Puta Creek watershed by 53.3 per cent, while the run-off exceeded it by only 23 per cent.

Colonel Chittenden says: "If the forest theory be true, these smooth western slopes should send down a greater flow for the same precipitation than the eastern slope. This is exactly what did happen. When the facts are correctly stated, the forest theory is absolutely sustained.

Passing to the question of flood height and flood frequency, it is perhaps unnecessary to insist that flood height is not the critical factor. As far as the influence of the forest is concerned, flood frequency and duration and the frequency and duration of low waters are the essential considerations.

The statement is made that "the constantly reiterated statement that floods are increasing in frequency and intensity, as compared with former times, has nothing to support it."

There are no long-time figures of stream flow in the United States, but, taking the rivers of which we have definite measures, dividing the time for those figures in two equal parts and ascertaining for those parts the frequency of floods, the number of days of floods, and the number of days of low water, it is found, in by far the majority of cases, that floods are increasing in frequency and low waters likewise. In other words, such records as there are for streams with mountain watersheds, where heavy cutting has been going on, directly support the view that the forest has influence on stream flow.

Figures covering from fifteen to thirty-four years for those streams whose watersheds lie in the Appalachian Mountains, and which have been heavily cut over within the period of measurement, refute the claim that there has been no change in flow during that time. In the report of the hearing on House resolution 208, before the Committee on the Judiciary, Sixtieth Congress, first session, it is shown that the Ohio, Cumberland, Wateree, Congaree, Savannah, and Alabama rivers disclose a marked increase of floods and flood duration. A more recent examination of the records of flow for the Allegheny, Monongahela, Muskingum, and Potomac rivers shows precisely the same trend. These streams do not show general increases in the extreme height of floods, but rather a marked tendency of the waters to rush away in many sudden violent floods of short duration, which is to be expected in the case of barren slopes. Most streams of which we have records show a longer low-water period now than formerly, though the tendency is not so marked as the tendency toward increased floods. Where such a tendency is not in evidence it may possibly be due to the geological formation of the watershed or to the filling of the stream channels, so that the general water level is raised.

In contradistinction to these streams which have mountainous or hilly watersheds, the Red River, whose upper basin is entirely in the plains and in a region which has largely been brought under the plow in the last fifteen years, shows

both diminished floods and greatly improved low-water conditions during the past sixteen years. This proves the case over again, only from another point of view. Surface conditions over a watershed clearly have great influence on the flow of the stream which drains it.

Fundamental errors appear to underlie the author's discussion of influence of forests on snow melting. The first is that the ground does not take up the water from the first melting of snow. The author says: "The water from the first melting of the snow blanket does not sink into the ground, but into itself. * * * The author has seen an 8-foot covering of snow dwindle to 2 feet with the ground beneath it still comparatively dry." Does not evaporation and rapid drainage into the ground account for this? In a forest, especially in a mountain forest, the snow usually falls on unfrozen ground, and the natural warmth of the ground hastens the melting of the snow at the bottom. Whatever free water appears soaks at once into the earth.

It is true that, because the sun is excluded in a dense forest, melting begins later than in the open, and Colonel Chittenden correctly states a universally known fact when he says that, "Even after the ground in the open is entirely bare, except under the drifts, the forest areas may still be covered with an unbroken layer of snow." Why? Simply because it is colder in the forest. It is colder when the process of melting begins; it is colder until the snow is gone in the open. The forest consequently acts in exactly the same way as the gulch on the north mountain exposure. It catches the average amount, or in some cases more than the average amount, of snow, and holds it till the melting time in the open is past. If the melting went on as fast in the forest as it does in the open, the discharge of water would be greater, considering the whole watershed, and floods would thereby be intensified.

The only condition under which the melting for like conditions is anything like as fast as in the open is during a warm rain, such as often accompanies the "chinook" winds in the western part of the United States. When this happens, the effect is the same on the snowdrift in the gulch and on the snow blanket in the forest. It melts at a most rapid rate. Once melted, there is this difference: Water from the snowdrift is at once in the channel ready to swell the floods, while water from the snow blanket is caught up in the layer of leaves and humus overlying a porous soil, and is retarded at every moment in its downhill course. A portion seeps down through the humus into the stream; a large or even larger part goes into the earth and does not reappear for weeks or months.

The assumption that, "of an 18-inch fall (of snow) perhaps 12 inches is on the trees and the rest spread evenly on the ground," is one which will be disputed at once by anyone who has made a habit of frequenting and observing the forests in winter. Such heavy retention of snow is seldom seen elsewhere as may be found in the cedar forests and swamps of the Northeast; yet even there the speaker, in some considerable experience, has never seen a condition which began to approach the proportion of two-thirds of the snow on the branches and one-third on the ground.

The foregoing is but a partial statement of the relations of the forest to snow. Unfortunately, time is lacking to elaborate it.

Turning to the influence of forests in preventing erosion, Colonel Chittenden says that "he has still to see a single example where the mere cutting off of forest trees has led to an extensive erosion of the soil." He further says that "a soil that will sustain a heavy forest growth will immediately put forth, when the forest is cut down (or even burned down), a new growth, generally in part different from the first, but forming an equally effective cover to the soil."

Those who have studied the forests know that the value of young growth, so far as water supply is concerned, is vastly less than that of the old first growth. If Colonel Chittenden had followed the literature of forestry somewhat further, he would have learned that the destruction of the old forest immediately has the effect of dissipating the humus which is the accumulation of tens and sometimes of hundreds of years. He would have learned, further, that the removal of old trees, however effected, reduces the value of the forest floor in promoting the permeability of the soil. There are endless illustrations which might be used, as in the Adirondacks, in Maine, and in California, where the type of growth which follows the destruction of the old forest is far less favorable to absorption than that which has been destroyed.

Colonel Chittenden has been unfortunate in the case of figure 2, Plate XL, which, he says, "shows one of the best examples of this class of timbered land; * * * and no large amount of soil erosion has resulted."

A perfectly flat place is chosen as an example, on which no erosion will be expected; but on the only slope shown in the photograph, the edge of a ditch, erosion is actually taking place.

Similarly, he says:

"In the forest areas of the East, the growth that follows tree-cutting, consisting not only of new trees, but of briars and small brush of every description, accumulates very rapidly, and forms a more effective mat against erosion than the original forest itself, and is equally effective in storing water."

The mistake is a fundamental one, every woodsman knows or should know, and it can be checked by anyone who will take the trouble to compare the quality of the forest floor in the two kinds of forest.

Colonel Chittenden goes on to say: "Certainly, the ground in a forest under culture, with the debris raked up, is more easily eroded than that of a slashing or second-growth area, or even good meadow or pasture."

Where Colonel Chittenden could have gathered the idea that in any cultivated forest whatsoever, and least of all in the United States, it is the habit to rake up the debris, the speaker is unable to say. But it must be said, with regret, that the statement shows so complete and thorough a misunderstanding of the most elementary foundations of forestry as to invalidate at once in the mind of any man acquainted with the forest the author's observations or conclusions on all matters relating to the practical management of the forest or its results.

It is unnecessary to dwell on the statement that it is not forest destruction, but agriculture, which has the effect of causing soil erosion. Whether one destroys the forest to cultivate the soil, or cultivates the soil after the forest is destroyed, makes no difference. In either case, the forest is gone, and its cover has been removed. But the effect of any good cultivation is directly the opposite to Colonel Chittenden's contention, as is shown in the case of the Red River.

The author suggests that we cease devoting the mountain slopes to forests, and take up their cultivation on the lowlands. The failure to conceive the elementary principle in all forestry and in all use of the land, that each part of the soil must be put to the use in which it will contribute most to the national welfare, makes this phase of the question peculiarly difficult to discuss.

As well might it be said that it would be an excellent thing to devote the west side of Fifth avenue to the growth of lima beans, because their transportation from that place to the consumer in New York City would be so much more convenient and so much cheaper than if they were grown on Long Island. But the west side of Fifth avenue has a greater value for another purpose; and the soil on which Colonel Chittenden recommends that trees shall be grown has a vastly greater value for agriculture than it could ever have for forestry.

The suggestion that trees be planted for the supply of the next thirty or forty years, instead of protecting and guarding the present forests, is the revamping of an idea which was prevalent in the earlier stages of forest agitation in this country. Those who have given attention to the matter have come to see that forest plantations can never take the place of protection of the natural forest and of its natural reproduction.

When Colonel Chittenden objects to the use of the term "wasted" in speaking of timber lands which pass into the hands of private lumber companies, he fails to remember this vitally important fact, which is another of the fundamental conceptions of forestry, namely, that when the Government cuts timber from the national forests it does so with the distinct and avowed purpose that the land shall go on producing timber. When a great lumber company cuts timber it proceeds, almost without exception, with the idea that the land shall cease to produce timber. In other words, if the great lumber companies are not wasting timber, because the timber comes into the market, they are wasting forests, which is the essential thing. Less than 1 per cent of the privately owned forests in the United States are being conservatively handled.

A word in summing up: If the speaker's points are well taken and have been made plain, Colonel Chittenden's fundamental conception as to the forest floor and its influence is mistaken. His idea that records in the United States do not show an increase in the frequency of floods and low waters is mistaken. His idea that the critical point to be considered is flood heights and not flood frequencies is mistaken. And his conception of forestry, of the functions and management of the forest, beyond its relations to water supply, is so fundamentally mistaken that the speaker might discuss it at far greater length without exhausting the mistakes.

**STATEMENT OF COL. WILLIAM H. BIXBY, CORPS OF ENGINEERS,
U. S. ARMY.**

The CHAIRMAN. Col. William H. Bixby has been kind enough to respond to the invitation of the committee this morning. He is of the Corps of Engineers, United States Army, in charge of United States river and harbor improvements in the Mississippi River Valley, and is at this moment president of the Mississippi River Commission. Colonel Bixby is really on duty before the Commerce Committee of the Senate to-day, but they have excused him for the morning; and in order that he may keep his engagement with them this afternoon I ask that he be heard now.

I may say briefly, Colonel Bixby, that the committee is considering what is known as the Weeks bill, a copy of which has just been handed to you, and the purpose of which is to acquire federal control of forest lands in the White Mountains and the Appalachians. Under the opinion of the Committee on the Judiciary of the House of Representatives Congress would not be justified in purchasing lands of this character unless it can be shown that there is a direct and substantial connection between the maintenance of forests on the watersheds of the rivers and the maintenance of navigation in navigable streams flowing therefrom. What the committee desires is your opinion on that question—as to whether there is a sufficiently direct and substantial connection between the forests upon the watersheds of navigable rivers flowing out of our mountains and the maintenance of navigation on those rivers to warrant the purchase of land for the purpose of maintaining those forests.

Colonel BIXBY. Mr. Chairman and gentlemen. I have not, of course, been specially at work on that branch of the service of forestry. My knowledge of it comes simply in connection with my own study of river and harbor improvements, on which I have been engaged in active practice, in charge of districts, ever since 1884. Moreover, in addition to having charge of districts, I might say that I have a little theoretical knowledge of the subject, because several years prior to that time I went abroad to study, and went to the French National School of Bridges and Highways (the Ponts et Chaussées), and went through their entire course. So that I was more or less imbued with their views on the subject of everything connected with rivers, and have more or less kept track of the matter ever since. As soon as the International Association of Navigation Congresses was started in Europe, where the government engineers of all the countries get together every three years for a discussion of all questions pertaining to navigation, I immediately joined that congress and have been a member of it ever since. I receive their papers every year, and while I do not have time to read them all carefully, so as to memorize them, I make a practice of skimming over them every year in order to see what books and what pamphlets and what articles are there that interests my line of profession. In that way I have kept in general touch with the question of forestry, as far as it concerns navigation, ever since something like 1879, when I went over to that school.

The only opinion that I can give, therefore, is an individual opinion based on my own past practice, based on what I have heard other officers of other adjoining districts tell me about their districts,

based on what I know of the French practice of old—at least, of their old instruction—and what I see in the proceedings of these various engineering societies (I might mention also the American Society of Civil Engineers, of which I have been a member for twenty-odd years), as to what the engineers have to say on the subject. So my views are entirely individual and personal, and should not commit anybody except myself.

In olden days I took quite an interest in this question, when I first heard of the government control of forests in France. I have always believed that it was a splendid thing for a government to take care of forests and to encourage them. Over in France the forestry service is not, however, a direct feature of the Ponts et Chaussees. It is not a direct feature of the work of their navigation corps. It is a service to which the Government details officers from various corps, from other branches of the government service, officers who they think are most in touch with the subject and most interested in it. Therefore the forestry service in France is largely filled by detail from the officers of the Ponts et Chaussees, the corps of bridges and highways.

The forests over there, as I say, are carefully conserved in the public interest, even so far that in the department of bridges and highways the French Government, under its own officers, plants trees alongside of every government road in the country. It takes those trees there and plants them, lets them grow to full height, cuts them down a few at a time at odd intervals, and replaces them with the younger growth. So that the sides of all the government roadways in France are, in a certain way, small forests—not thick forests, but still they produce a good deal of wood. And they used to consider that even that amount of planting trees paid for itself in the end—that the wood and timber that they cut down paid for the cost of planting and watching and taking care of the trees.

On their slopes up in the high ground, where land is adapted to cultivation by trees, they planted forests. They were, at the time I was there, very much interested in the question of protecting the slopes along the edges of the mountains where they were being washed away by rainfall. They spent a great deal of time and attention on those slopes in order to protect them and keep them from washing away. Their main object in such protection was to conserve the land. They did that by putting little dams across the gullies and streams that come down the steep slopes, catching the silt, and either sodding or planting the slopes in any way which was most advantageous.

The CHAIRMAN. Did they carry on this work as a part of their river-improvement plan?

Colonel BIXBY. No, sir; the officers of the forestry service are detailed from the waterway-improvement service because the forestry service can get men better suited to their work by going over to the river and harbor improvement service; that is, getting men who have been trained at the school of bridges and highways. That is their navigation improvement school.

The CHAIRMAN. Their work, then, had for its purpose, first, the growing of timber for the sake of timber?

Colonel BIXBY. Yes.

The CHAIRMAN. And, second, the protection of the land for the sake of the land?

Colonel BIXBY. Those are the main objects of the forestry business in France—to grow timber in the public interest, and to protect the slopes where timber will assist in so doing.

Mr. LEVER. You say the growing of this timber was commercially profitable?

Colonel BIXBY. It is commercially profitable even at the roadsides.

Mr. LEVER. Even at the roadsides?

Colonel BIXBY. Yes; and it ought to be much more commercially profitable up in the other places, although I can not vouch for the profit there. But I do distinctly remember that even as far back as 1880 I was told that with care it was commercially profitable—that is, it paid for itself—just the occasional trees at the sides of the roadway that were put in there for ornamental purposes.

I have followed forestry in a little bit of an incidental way, in that way, ever since 1879, because it is always considered as bordering on the duties of the Ponts et Chaussées in France, and the duties of the river-improvement corps of other countries of Europe. The two are so touching one on the other, that they endeavor to work them in harmony—

Mr. LEVER. What do you mean, just there, when you say the two are close together? Do you mean the river and the forest?

Colonel BIXBY. The river and the forest; yes. Of course the water for the rivers in the upper parts comes out of the forests. The question has always been broached, and has been in dispute ever since I first knew of any government works in Europe, as to whether forests benefited navigation or not. It was discussed even in their schools back in 1879. It has been discussed since then before the International Congress of Navigation. It was discussed in 1905, I think, very extensively. I have forgotten just the date of that. Let me see: In 1905, at Milan, they went into it very extensively in their discussions. They have discussed the matter among the French engineers for years. We have discussed it in the United States as engineers for years.

The net result of that discussion has been, up to the present time, among all the technical men, the engineering fraternity: It is a draw off as to whether or not the forests affect navigation at all. There are some who think they do, and there are some who think they do not. There are isolated cases where it is quite apparent to some people that there is a local benefit. There are other isolated cases where it is equally apparent that there is not. So far, up to the present day, every meeting of technical men, every meeting of engineers all over Europe as well as in the United States, has resulted in a drawn game as to whether the forests did affect navigation or whether they did not.

The CHAIRMAN. Colonel Bixby, a great deal of your professional life has been spent on the Mississippi, has it not?

Colonel BIXBY. I have been two years on the Mississippi; I have been four years on the Ohio; I have been five years on the Great Lakes; I have been four years on the South Atlantic coast; I have been two years on the Middle Atlantic coast; and I have been four years on the south New England coast.

The CHAIRMAN. As a result of all your experience with rivers, what is your opinion as to the principal source of the silt that obstructs them? Does it come from the headwaters of the streams or

does it come from the banks along the navigable reaches of the streams?

Colonel BIXBY. On the Ohio and the Mississippi and the Missouri, where the silt is very troublesome, if we could feel that we only had to deal with the soil that comes from up in the headwaters, we would think that there was no trouble at all in doing anything. Out of the soil that troubles us in the Mississippi River, for example, there is a million cubic yards of silt per mile every year falling into the river from its banks; there is a billion cubic yards falling into the river between Cairo and the mouth of the Red River every year—a pile of dirt a mile square and a thousand feet high. The amount that comes down directly from the headwaters is insignificant in comparison.

Mr. LEVER. On that point, Mr. Chairman, if you will permit me, I think it important to have Colonel Bixby tell us whether or not the condition of the soil along the banks of the Mississippi River is the same as the condition along the rivers having their rise in the White Mountains and the southern Appalachians? In other words, is not the soil along the banks of the Mississippi a deep alluvial soil, given to washing and falling in, caving in, as against a rather hard surface that we deal with in the southern Appalachians and the White Mountains?

Colonel BIXBY. Of course soils differ; but as a general rule the mountainous soil is a rather tough and solid material that is not easily disintegrated. By the time it gets down to the ocean, especially on a river like the Mississippi, it is a mud so thin and so soft that it is pretty nearly of the consistency of thick soup. If you put your hand into it next to the mud bank, and wave it through the water, you can see the bank get up and move. As you go from up in the mountains down to the Gulf, you can get any condition you want in between those two extremes. In the lower basin of the Missouri, below the mouth of the Yellowstone, the valley that the river goes through is all of alluvial formation; and when you get down below the Missouri, on the Mississippi, it is fully as much so and a little more. When you get below Cairo, undoubtedly, both banks of those rivers for miles, until you run into the high cliffs, are all soil that has been deposited there in a location that originally was deeply covered with water.

Mr. LEVER. And is necessarily greatly susceptible to erosion and caving in?

Colonel BIXBY. Yes; the softer it is the more easily it erodes.

Mr. LEVER. Certainly. Those conditions, Colonel Bixby, do not exist on the streams having their rise in the Appalachian and the White Mountains to that extent, do they?

Colonel BIXBY. They do not exist to the same extent; no, sir.

The CHAIRMAN. Speaking of the latter streams to which Mr. Lever has referred, would or would not your statement as to the Mississippi cover them in a broad way? Would you say, as to those streams, that the silt with which you have the most difficulty in maintaining navigation comes from the banks of the streams along the navigable portions, or does it come from the headwaters?

Colonel BIXBY. The silt that troubles us most from below the mouth of the Yellowstone, on the Missouri, and on the Mississippi down to the Gulf, is the silt that tumbles in every year from the

banks. Of course, thousands of years ago that silt may have been up in the mountains, but it is the amount that is washed out every year into the river from the banks that troubles us.

The CHAIRMAN. I was asking now whether that is the condition that prevails also in the streams flowing east from the Appalachians and from the White Mountains?

Colonel BIXBY. On the Ohio it is the same condition to a lesser extent.

Mr. LEVER. But what about the streams flowing from the Appalachians to the Atlantic Ocean—the eastern streams?

Colonel BIXBY. To the Atlantic coast?

Mr. LEVER. Yes.

Colonel BIXBY. Of course the upper parts of them are in steep ground, and of course they are cut down more or less by any freshets or floods up at the headwaters. But take the Roanoke River, for example: The Roanoke River at Weldon is a long way off from the Alleghenies, and it is two-thirds of the way down to Albemarle and Pamlico sounds. The Cape Fear River, in the southern part of North Carolina, at Fayetteville, is a long way off from the headwaters.

The CHAIRMAN. Consider those two streams: Does the silt which troubles you most come in from the banks of those streams, or does it come down from the mountains?

Colonel BIXBY. Comparatively little sand goes by Fayetteville on the Cape Fear, and comparatively little sand or silt goes by Weldon on the Roanoke in proportion to the material that comes in from the banks.

The CHAIRMAN. If you had practically unlimited means at your disposal, and were charged with the responsibility of protecting the navigation of those streams or any other navigable rivers flowing out of the Alleghenies or the White Mountains, what proportion, if any, of the sum at your disposal would you feel warranted in spending for the purpose of maintaining the mountainous watershed in forests?

Colonel BIXBY. I might put in 1 per cent just to see what would happen; but I would not do it with any feeling that I was really getting my money's worth back. At the same time, after every other known method of successful improvement of the river is finished, and you have the lower portion of it and the middle portion of it in a nice, complete condition, improved as well as anybody knows how, then, in foreign countries, they begin to reach out to see if they can not get in what we call in mathematics the differential. They go down to the first differential, and later on to the second. That is to say, after you have the results where you expect to get 25, 50, or 75 per cent benefit, after those have all been used up, then you begin to reach out for your 1 and 2 and 3 and 4 and 5 per cent benefits, if you can get them.

The CHAIRMAN. Has any army engineer of the United States ever made any report, to your knowledge, in which he recommended the forestation of the mountain headwaters as a part of a scheme of river improvement or maintenance?

Colonel BIXBY. I do not recollect any. I would not say that some of them might not have done so; but I do not recollect any.

Mr. LEVER. I shall be very glad to have Colonel Bixby refresh his memory from this report of Major Raymond's.

The CHAIRMAN. Is it right in that connection?

Mr. LEVER. Yes, sir.

Colonel BIXBY. Whose report did you say?

Mr. LEVER. Major Raymond's. It is in the report of the Chief of Engineers for 1891, part 2.

Mr. HAWLEY. I should like to ask a question of Colonel Bixby at this point.

Colonel BIXBY. What improvement was he in charge of when he made it?

Mr. LEVER. I really do not know. I will look that matter up. Go ahead and ask your question, Mr. Hawley.

Mr. HAWLEY. Suppose the banks along a river were of such a character that they did not wash from its mouth to the point on the river where the silt from the mountains might come into them. Suppose the bank was entirely of such a character that it did not wash and there was no wash from the fields. What proportion of the amount of money now used or appropriated for river and harbor improvements would be necessary to keep the rivers open to navigation under the conditions that I suggest where the total amount of silt or detritus was to come from the mountain waters?

Colonel BIXBY. Where the total amount of silt was to come from the mountain waters?

Mr. HAWLEY. Yes.

Colonel BIXBY. That is so contrary to the conditions of all the rivers that I have had anything to do with that the only thing I can say is that that is something I have never seen.

Mr. HAWLEY. That is the problem we are wrestling with.

Colonel BIXBY. If, as some people desire (at least, according to the papers and letters we get once in a while), we could have the Mississippi River improved as they say it ought to be, and if it were proved that such an improvement would be successful (to which we agree), by having the sides and bottom of the river made of the right cross section and then concreted all the way down from St. Louis to the Gulf, we would not care a rap whether there was any sand in it or not, because if it once got in at the top it would go all the way through.

The CHAIRMAN. The silt that came down from the mountains would not worry you?

Colonel BIXBY. No; it would go right through. It would be just like a sewer in a city. They are not bothered very much in the city sewers with any stuff like sand, rubbish, and so forth. Do you not see them every day in the city, where there are no laws against it, getting all of the dirt and rubbish up in the winter time, along with the snow, and dumping it right through a manhole into the main sewer? When I was on the Ohio River, did they not go to work in one of those towns and take all the contents of their cesspools and all the rubbish and dump it right into the manholes of the sewers, so that it would be carried into the river? They said they did not care about what became of it; it would be for the people out in the river to take care of it when it got there. It did not stop in the sewer; and it would not stop in a river that had solid sides and bottom and had the right cross section. Our problem in river im-

provements is to get the right cross section without concrete, and then to hold it. After we get the right cross section, we are not bothered with the rest; we can hold it.

Mr. PLUMLEY. It has been stated that we have expended about \$300,000,000 in trying to determine how to manage the Mississippi.

Colonel BIXBY. It has been stated, but, unfortunately, the records of the department do not show it.

Mr. PLUMLEY. They do not show that so much has been expended?

Colonel BIXBY. No. I left my book containing the data as to that in the other room.

Mr. PLUMLEY. But is there anything in the records of the department and the facts of to-day that really makes you glow with pride over the results?

Colonel BIXBY. Well, sir; that depends on how you look at it.

Mr. PLUMLEY. I looked at it last fall.

Colonel BIXBY. The successful improvement of the Mississippi River and of the Missouri River, the upper and the lower Mississippi, and the Ohio, as an engineering problem, was settled several years ago. As a business proposition, when we have to wait for some fellow to furnish the funds to do the work, and then after we have taken, say—as on the Missouri River—45 miles of it and made it a howling success, something for everybody to look at all over the country, and then after that is done the appropriation stops, of course, we are handicapped, and we do not feel proud of the result. But we are proud of what we did, of the engineering results we got with the money we spent.

Mr. PLUMLEY. Where on the line of the Mississippi, below St. Louis and New Orleans, are there especial evidences of successful fortification against the breaking away of the banks and the conserving of the stream?

Colonel BIXBY. We have been exceedingly successful on the worst stretches of the Mississippi River—down at what they call Plum Point—very successful. Of course down below the Red River we are not bothering our heads with anything, because we have places there where the river bed never has filled up. That whole valley is probably the deposit of alluvium that was washed down from up above, but it never has filled up. Just below the mouth of the Red River, say, below Bayou Sara or Baton Rouge, and from there down to Passes, there has been 120 to 150 feet depth in spots in the main part of the river for the last several hundred years. There never has been anything less than 30 feet anywhere in the boat channel for as far back as the United States has been known.

The only place that troubles us there is when you get away down to the mouth of the river next to the Gulf. Of course the rubbish piles up at the mouth of the river out into the Gulf, and we have to deal there with an ocean bar that has been washed from somewhere or other. But below the Red River, between Baton Rouge and New Orleans, about 180 miles, and from there away down to the Passes and along there the river does not bother us at all.

People do not know anything about it: but from there up to Cairo we have maintained for the last six or seven years a depth of 9 feet, such that no vessel has ever been delayed in getting through the channel by reason of bars. There has not been a very great deal of com-

merce, but that is not the fault of the river, as the river is there able to carry the boats.

From Cairo up to St. Louis we feel that the money that we have spent is worth talking about with pride, because for seven years there has never been a boat going down from St. Louis to Cairo that drew as much as 8 feet that ever got stuck on a bar as long as it stayed in the channel. Of course, if it tried to cut across lots, it got stuck. If it had an accident to its machinery, it would turn around and go home, and the newspapers would say that it went back because the river was not deep enough. But at our St. Louis offices we kept tab on those things, and we always got hold of such newspaper clippings and found out the name of the boat and wrote to the captain; and in every case we found that the real reason was something different from the one that was alleged.

Of course the captain or the pilot of a boat is not going to give himself away to the newspaper reporters by admitting that the reason his boat stuck and he had to go back was his own fault or an accident to the machinery. If he said that it was because of an accident to the machinery or the boat, he would expect to be fired by the owner of the boat, and the men are not going to tell such stories. But, as a matter of fact, for seven years there has never been a case where any boat was stopped on the way from Cairo up to St. Louis by lack of water in the main channel. The stoppage has invariably been the result of something else in the form of an accident, or fog, or because something else happened that was not the fault of the river.

MR. PLUMLEY. This is not germane, but I should like to get the information from you at first hand: What have you determined upon as the practical method of protecting the banks?

Colonel BIRBY. Just one moment, before we come to that. The total amount of the appropriations for the Mississippi River (asked for a moment ago) from the mouth of the Missouri River to the Gulf of Mexico, since the Government has handled it, is as follows: About twelve and three-quarter million dollars from the mouth of the Missouri to the Ohio; fifty-eight and three-quarter million dollars from the Ohio to the Head of Passes; sixteen and three-quarter million dollars on the Passes; eighty-eight and one-quarter million dollars in all. There is not any expenditure anywhere in the world that has given better results than the sixteen and three-quarter million dollars for the Passes. You can not object to that. In the case of the fifty-eight and three-quarter million dollars spent from the mouth of the Ohio to the Head of the Passes, over twenty millions went into levees and the protection of the land by those levees.

The twenty or so millions that went into the levees has developed money values in the lands that were protected behind the levees worth several times the twenty or so millions and a good many times the whole eighty-eight and three quarter millions that has been spent there. The other thirty-eight or so millions have gone into bank work, and dredging, and incidentals; and that expenditure has not only maintained for years in that river a good channel that is many times wider and deeper than any boat has ever needed from the earliest times of the country until now (I mean, since the improvements were started), but it has maintained a width and depth of channel that is far in excess of the width and depth on the larger rivers of Europe. We feel that we have a right to be proud of that. Yesterday, over in

the Committee of Commerce, somebody said: "But there has not been any commerce developed there." I said: "The Engineering Corps does not hold itself responsible for the use of the river. After we have made it a tool suitable for somebody else's use, we are not responsible if people do not use it."

Mr. McDERMOTT. How deep is the river from Memphis to New Orleans? What is the average depth?

Colonel BIXBY. From Memphis to New Orleans? I suppose you would like to have the exact figures?

Mr. McDERMOTT. No; just an average—just a guess.

Colonel BIXBY. It is very easy to give it to you.

The CHAIRMAN. If you have not the figures at hand, I think Mr. McDermott will admit that the inquiry is hardly germane to the bill before us.

Colonel BIXBY. From Memphis down to the mouth of the Red River, on the bars which are found after each freshet goes by, you will sometimes find 7 and 6 feet if there are no dredges around. Then the dredges set in, cut a channel across the bar and start the water in the proper line across the bar on the route that we have found advantageous before. Then, after we have led the way, the river does the rest, and cuts a first-rate channel there, and maintains it all through that low-water season, until the next freshet comes along. When the next freshet comes along it fills it up, at present. That is because we have to do our work by dredging, and because we cannot (for lack of funds) protect all the banks so as to keep them from crumbling into the river. Between those bars you will find the river anywhere from 20 or 30 or 40 to 70 or 80 feet deep. When you get down below the mouth of the Red River, as I say, the depth on the bars is 30 feet, and at intervals of a few miles there are depths of 120, 140, 150, and 200 feet, and so it goes. The average depth does not mean anything to navigation.

The CHAIRMAN. I will ask the members of the committee to limit their questions to the matter directly in hand, so that, if possible, we may finish this morning.

Mr. LEVER. Colonel, your discussion of the Mississippi River is very interesting and instructive; but to me it seems irrelevant to this proposition, because you have admitted that the soil conditions existing through the valley of the Mississippi are quite different from those through which the streams flow that rise in the Southern Appalachians and White Mountains. I should like to ask you if you have any personal knowledge of the Connecticut River?

Colonel BIXBY. My river-improvement districts did not take in the Connecticut; but I have been through the mouth of the Connecticut in steamboats, and I have been up on the upper part of it in small boats, and I have dropped into it at intervals all the way up to Holyoke and all the way up to Bellows Falls and a little above. I have dropped into it in spots ever since I was a boy.

Mr. LEVER. You know that there is a great sand bar at the mouth of the Connecticut River, do you not?

Colonel BIXBY. Yes, sir.

Mr. LEVER. What forms that sand bar? The silt that comes from the mountain regions or the caving in of the banks in the lower reaches of the river?

Colonel Bixby. On the Connecticut River the banks are not as high and the freshets are not as high as they are in a river like the Mississippi. The soil is not as loamy; it is not as silty; it is not as soft as it is in the case of the Mississippi, of course. So the proportion of the soil that falls in from the banks is less on the lower Connecticut than on the Mississippi. But a great deal of that on the Connecticut comes in from the banks. If I should go there and look around at the sand on that bar, or at any place along the lower Connecticut, I should say that the greater part of the sand came from the river above, locally; that if I went back only fifty years I should not have to go very many miles up the Connecticut River to find out where it started from. If I went back two thousand years, I should probably find a great deal of it up along at Greenfield, coming from up there. If I went back a million years, I should probably find that most of it was originally up in the northern part of New Hampshire and Vermont.

Mr. Lever. Is it not a fact that the formation of this bar is caused by the flowing into the mouth of the stream of erosive matter that is eroded in the upper reaches of the Connecticut River?

Colonel Bixby. I claim that in the case of the Connecticut, just as in the case of the Missouri and the Mississippi, it does not come straight from the mountains. It comes as it does on the Missouri; it goes downstream until it hits a bar. Most of it lodges there, and it stays there during low water. The next flood that comes along picks it up from that bar, washes it up in the current, and carries it down, perhaps, to the next bar.

The **CHAIRMAN.** But the bars themselves are formed by the dirt which comes from the immediately adjacent banks? Is that your idea?

Colonel Bixby. The bars themselves are formed by material that has come down to them only from one or two bars up above.

The **CHAIRMAN.** Exactly.

Mr. Lever. In that connection the statement was made before this committee a year or so ago by a gentleman who seemed to be very familiar with the Connecticut River—Mr. C. C. Goodrich, general manager of the New York and Hartford General Transportation Company—that there is no alluvial mud on the Connecticut River. Is that your information?

Colonel Bixby. That is my general experience, if we call it alluvial mud. I never knew what real mud was while I lived in New England. If I went in swimming I went in a stream that was so clear at its muddiest times that I could pretty nearly see the bottom in 10 feet depth of water. There was not anything like mud in it. If I got down to the bottom I found that it was generally a sand bottom.

Mr. Lever. There is not any caving or undermining of the banks of the Connecticut River that amounts to anything, is there?

Colonel Bixby. There is some caving of the banks. Here is the point that I did not have a chance to get through with a moment ago: As I say, this material comes down from one bar and lodges on another one, and the next flood takes it up and washes it down toward the next bar. It does not all get to the next bar, by a long shot. It is thrown out by the current on the sides of the rivers and forms local bars. They will be bare at low water. A whole lot of that sand is sidetracked and piled up on those local bars. Then,

when the next flood comes along, some of it is picked up and moved along, and as it is picked up from the bar and moved along it is scattered sidewise, and only a very small proportion of it gets to the next bar. Then that is all picked up and moved along again, and it goes along in steps. It goes along "steady by jerks," as the boys used to say, so that it takes an exceedingly long time for it to make 50 miles downstream. But while it does not come out of the formation on the sides of the Connecticut by caving in of the banks to the same extent that it does on the Missouri, still a very great deal of it comes from the sides of the navigable channel and from the bars that have been built up by the prior freshets.

In the Connecticut River, down by Holyoke and Hadley, at what is called "the oxbow," you have an immense old river bed that has been cut out of existence as a part of the river, just exactly as you see those same oxbows on the lower Mississippi. That shows that in the olden days the Connecticut was handled by nature in just the same way that nature is now handling the lower Mississippi. It is only a question of degree. And when you go down to-day to the mouth of the river and pick up sand that is down at the mouth of the river, it is impossible for you to say whether that sand started from the headwaters of the river before the days of the Oxbow or since. The chances are very greatly in favor of its having started before the Oxbow was sidetracked.

The CHAIRMAN. So that, as a matter of the immediate maintenance of navigation on the Connecticut, if you had only to deal with the sand or silt which comes down from the mountains, the problem would not be relatively any greater than it is on the Mississippi.

Colonel BIXBY. It would be a very small affair to handle it.

Mr. PLUMLEY. Have you any statistics, Colonel, which show the average flow in cubic inches of water in the Connecticut where it is navigable, nowadays, as compared with fifty and a hundred years ago?

Colonel BIXBY. I have not, sir; no, sir.

Mr. PLUMLEY. Do you know of any such figures?

Colonel BIXBY. I think, without any doubt, you will find them in the office of Chief of Engineers. Undoubtedly you will find them somewhere; because at the time the Holyoke dam was built, the engineers who were investigating the question of the water supply for the Holyoke dam went back for years into the question of water-flow preceding the construction of the dam; and nowadays they know what the waterflow is.

Mr. PLUMLEY. They know it year by year, do they not? They calculate the flow every year, do they not, in cubic inches?

Colonel BIXBY. Yes, sir; they have to sell it and get paid for it; and you may be sure they calculate it.

Mr. PLUMLEY. All along the Connecticut and Merrimac those studies are made every year and reported to the different factories; are they not?

Colonel BIXBY. They should be.

Mr. PLUMLEY. Do you understand that they are?

Colonel BIXBY. I believe they are.

Mr. PLUMLEY. And it is a varying and constantly lowering standard of cubic inches in low water?

Colonel BIXBY. As I do not know the results, I can not say what the deductions are.

The CHAIRMAN. Colonel Bixby, what would be the natural result of the construction of dams along the Connecticut River and the diversion of the water to supply the increasing population?

Colonel BIXBY. Will you repeat the question, please?

The CHAIRMAN. What would be the result of the construction of dams, of waterworks, and the diversion of water to supply the increasing population that has come in there in the last one hundred years? Would not that in itself account for some amount of water?

Colonel BIXBY. Wherever you use water for irrigation, you can always be pretty sure—

Mr. PLUMLEY. We do not use it there for irrigation.

The CHAIRMAN. I am speaking of the Connecticut.

Mr. PLUMLEY. He means, I presume, to go to the houses. Practically all of that water comes back, does it not?

Colonel BIXBY. Almost all of its comes back, later on, into the river. You can not expect that the annual flow of the year will be much affected by the cities and towns and the development of population; but the cities and towns and farms may and do affect very greatly the rapidity with which water runs off during the big, heavy storms, and the slowness with which it runs off on some other occasions. Every city spends lots of money in arranging its street pavements in such a way as to shed water quickly, and puts in gutters to run it off quickly, and arranges so as to encourage people to use water in their houses. Then it makes facilities for its running off quickly, and it gets it right back into the river as quickly as it can. When a great, big, heavy storm comes along the water that used to take perhaps two or three weeks to get back into the river is all back there the next day.

The CHAIRMAN. What would you consider to be chiefly responsible for the greater suddenness and height of floods in the Connecticut River than formerly, in case those facts exist? Would you ascribe it to the facts to which you have just called attention—the paving and sewerage of the cities and the ditching of the farms—or to the deforestation of the mountain watersheds?

Colonel BIXBY. I should ascribe fully 95 per cent of it to the improved farms, and the improved drainage, and the ditches along the roadways, and the nice roadways that form great, big channels to lead the waters along, and the streets and the sewers in the cities.

Mr. STANLEY. Colonel Bixby, the facility with which precipitated water gets back into the river adds to the eccentricity of the river flow, does it not?

Colonel BIXBY. Of course.

Mr. STANLEY. And deforestation in the same way and for the same reason adds in a lesser degree to the eccentricity of the river flow?

Colonel BIXBY. Of course, I have an individual opinion on that. I have tramped all over the White Mountains, and I know all about that section of the country. I have also been on foot through parts of the Alleghenies; but it is the White Mountains that I know the best. I have been on foot through the White Mountains when they were full of magnificent trees; and I was as sorry as anybody was to see them cut off. But after I had been up there one season and they had cut them off, I went back the next season and went up on top of the same

mountain to look at things, and I did not see so much eroded ground as I had expected to see. I did not see so much country without trees as I had expected to see. The whole place was practically grown up with second-growth timber; and that second-growth timber made a little cover over the surface, and in the summer time it looked just about as green as it did before, except that it was not so high or so large.

The CHAIRMAN. And was it available as an efficient cover for the ground?

Colonel BIXBY. The last time I was up there and tramped over the mountains was after they had been cutting off some timber, and I took tramps across lots; and—

Mr. LEVER. How long ago was that?

Colonel BIXBY. The last time that I was up there tramping was in 1895.

Mr. LEVER. So that in the last fifteen years you have had no personal experience with the situation up there at all?

Colonel BIXBY. I do not know the White Mountains in the last fifteen years; no. But they had begun to cut off then.

Mr. LEVER. Was the denudation considerable at that time?

Colonel BIXBY. Just below Franconia Notch, around in that neighborhood, it was very marked.

Mr. LEVER. But up on the high, steep parts of the mountains, away up in the upper reaches, was the deforestation considerable at that time?

Colonel BIXBY. They had begun to cut in up the valleys, back of the range of mountains that runs on the east side of Franconia Notch.

Mr. LAMB. The cutting was in the valleys, mostly?

Colonel BIXBY. In the valleys, mostly, and up the sides of the slopes, pretty near up to the tops of them.

Mr. LEVER. Let us suppose a case. Suppose that these high mountain slopes had been entirely denuded of their forest, and suppose a forest fire in the meantime had swept across those mountains, leaving the ground practically bare.

It is not your contention that such a condition would not add to the rapidity with which the precipitation would run into the streams, giving you a very exaggerated high-water mark on the one hand and a very exaggerated low-water mark on the other, is it? Would not that be the natural result of such a condition?

Colonel BIXBY. If the fire burns it all off in such a way that nothing can grow, of course the burning would be responsible for the biggest harm. It might be so that the water would run off. In France, where they have such cases, the first moneys that they spend are for building little dams across each gully.

Mr. LEVER. And sodding the dams?

Colonel BIXBY. They put in earthen dams to catch the rubbish, so that it stands back of the dam and is kept from running down to the foot of the slope; and if they can sod the bank, they do it.

The CHAIRMAN. Do you mean that they sod it rather than plant trees?

Colonel BIXBY. So far as affecting the run-off is concerned, the sod is far superior to the trees, from my study. The tree sends its roots away down into the soil. When you get a foot or two below the sur-

face of the ground, which may be covered with leaves and dirt and alluvium, etc., which acts something like a carpet, you get into the soil where the roots of the trees are; and the roots of the trees are pumping water out of there just as you pump water out of an artesian well. Some of the book descriptions of investigations, where they have sunk wells in forests, and sunk wells in unbroken land right by the side of them, show that the water may stand anywhere from 3 to 12 feet lower in the wells in the forests than in the wells out in the open land, because the tree roots are pumping the water out and sending it up through the trunk into the leaves, where it is evaporated and passes off. The grass affords the same protection to the land that the leaves and the pine rubbish and all that other stuff do; but it does not send its roots down so deep into the ground, and it can not do anywhere near as much pumping of water out of the ground as the roots of the big trees do.

The trouble with the sod is that it will not always stand; and it is not always easy to get a good sod bank on a slope, as we know very well in our fortification practice. But where you can get a good sod bank on a slope there is nothing equal to that for revetting the banks and preventing the wash of the banks. On the river and harbor improvements in every country that I have been in, as well as in the United States, where you have a canal with steamboats going through it, they plant grass on the slopes and plant rushes on the edge of the canal. The big canals in Europe, in Holland, have a great big berm on the side of the canal, several feet wide, which they leave there on purpose to plant reeds in, so as to get a reedy vegetation to protect their slope. Then, beyond that, there is an earthen slope that is grassed and sodded. That is the best protection of a bank you can possibly have, if the slope is not so steep as to prevent it.

MR. LEVER. Let me ask this question in that connection: Is not the forest better than grass to aid in the absorption of water by the ground? In other words, does not more water go into the surface of a forested area than into the surface of a deforested area, given the same amount of rainfall?

COLONEL BIXBY. There is no agreement among engineers as to that; but this is certain: After it gets by the surface it has a pretty tough time to get by the roots; and it goes up the roots and up into the trunk and up into the leaves, and is evaporated; and the net result to the land is not so much in the way of water, and what is left in the brook in the way of water is not as much as if the forest were not there. The proof of that is this: On the sand dunes of southwestern France, down along by the Bay of Biscay, for hundreds of years they were troubled with marshes covered with water in the land called the "steepes." As a boy I used to see pictures of that part of the country, showing the men who were tending sheep walking around on stilts, so that their feet were about 6 feet higher than the ground. They were walking all over that country in that way, because it was the only way they could get around on account of the water. France went to work to reclaim that land, and the first thing the engineers did to reclaim it was to plant trees in it. The recognized way of treating marshy lands in that section of France is to put it into forests, so that the water will be taken up and gotten rid of and sent back to the air. Of course it is not there to run off into the streams if that is done.

The CHAIRMAN. I think what Mr. Lever was getting at was your idea as to which would constitute the better reservoir, with an idea of holding the water and letting it out slowly.

Colonel BIXBY. Letting it out gradually?

The CHAIRMAN. Yes.

Colonel BIXBY. Give me grass, every time, if it will stand.

Mr. LEVER. You mean if the slope is a gradual slope?

Colonel BIXBY. If it is a slope that vegetation like grass or alfalfa or grain or oats will stand on. We plant oats on the canal banks. Sometimes we have trees, willows or osiers. Sometimes we have reeds, such as they have on the South Atlantic coast, that we use up here for fishing poles. If you can get those to grow, that little bit of a light surface growth, which only goes up a few feet above the soil and does not have roots that go down very far, is the thing that does the work.

Mr. LEVER. Your statement is predicated on the idea that clover, grass, willows, and the like of that, are to be planted upon slopes that are not steep?

Colonel BIXBY. Yes.

Mr. LEVER. But the point that is involved in this bill is the denudation of the higher, upper slopes of the mountains. And let me ask you, Colonel—

Colonel BIXBY. We put them on slopes as steep as that [indicating].

Mr. LEVER. That is an angle of 45 degrees?

Colonel BIXBY. Pretty nearly—well, one on two, as a rule.

Mr. LEVER. Let me ask you this practical question: If we are to save our mountain slopes from erosion and washing off, do you think it is a better plan to allow the deforestation to go on, and then adopt the plan of planting grass; or would it be better to preserve the forest that we have now as a preventive of erosion?

Colonel BIXBY. I would not want to put any of my own money into it.

Mr. LEVER. Into the grass proposition?

Colonel BIXBY. No; into the forest proposition, for the amount of water that I would get in my streams, or for the amount of soil that I would save. I would like to put money into it for the amount of lumber that I would get out of it, in certain cases.

Mr. LEVER. As between the two plans, however, if you were to take one or the other plan for the prevention of erosion, would you take the plan of planting grass upon these steep mountain slopes, with the immense amount of expense involved, or would you preserve the forest and the undergrowth that you now have?

Colonel BIXBY. I am going to take the liberty of what somebody said was the Yankee's way of answering a question. That is to say, last summer I went down the Rhine; and I had not been down the Rhine for over twenty-five years before, I think. I was amazed, this time when I went down, to see how much more fully and completely the steep banks of the rocky hillsides of the Rhine, from where it begins to be picturesque, were covered this last year than they were about twenty years ago. There was not any water running down those banks very fast. There was not any eroded soil going down to the bottom of them. They were terraced all the way up from the bottom to the top, and most of them were planted in vineyards; and some of them looked as if they were planted in other things, agri-

culturally. If I wanted to save my soil, that is the way I think I would like to save it. I would save it right in my little garden patch before it got away from me

Mr. LAMB. But you can not save the Appalachian Mountains and the other headwaters of the rivers by any such agriculture or planting of grass as that. You can not do it. Conditions are different.

Colonel BIXBY. One of the best and finest vineyards of olden days was right at Cincinnati, on the banks of the Ohio, put in by the people who owned that property that belonged to the Longworths.

Mr. STANLEY. But the whole country has gone in favor of prohibition, and we can not raise any more vineyards.

Colonel BIXBY. In Japan they do not raise vines—I mean they do not raise the grape; but in Japan the whole country on the steep slopes is terraced in that way for agricultural purposes, and they use the little terraces as garden strips.

Mr. PLUMLEY. Would you recommend terraces for the Appalachians with the present value of land?

Colonel BIXBY. Of course I am personally very much in favor of seeing the Appalachians stay in their forested condition. I am greatly in favor of it, and always have been. But I would like to see them stay that way for forests, and if I contributed money personally to it I would contribute considerable for forests. But the point I make is the point you are asking me about in connection with eroded soil. If I were going to save soil, I think I could get more results out of my money by spending it in other ways for saving soil than by saving water.

The CHAIRMAN. Let me ask a question right along the line of Judge Plumley's: You said that you had been on foot to some extent in the Appalachians?

Colonel BIXBY. To a certain extent; yes, sir. I have been across them.

The CHAIRMAN. And you know that the lower slopes of the mountains there are the ones which are cleared for farming?

Colonel BIXBY. Yes.

The CHAIRMAN. While the upper slopes up to the present time are chiefly in forests?

Colonel BIXBY. Yes.

The CHAIRMAN. I understand from what you have said that you would not regard the erosion from that section of the country as of any particular danger to navigation in the streams below?

Colonel BIXBY. Yes.

The CHAIRMAN. But suppose you did want to prevent erosion to the greatest extent possible. Which would you regard as more important—to recover the mild slopes which are now used for farming purposes, or to retain the steeper slopes in forest? In other words, from what source do you think would come the greatest erosion as a menace to navigation—from the lower slopes, which are now farmed, or the others?

Colonel BIXBY. The Kanawha River, in West Virginia, runs right up into the mountains. The Kanawha River has a great many locks and dams on it. For a while it was under my jurisdiction. I had to go up there. It empties into the Ohio. I have been up the navigable portion of it, quite a way up the New River, where years ago they used to cut out boat channels. I have been up the New River all the

way until you come out on the railroad, near the fine coal mines that are up there on the Norfolk and Western Railroad. During the few years I was on the Kanawha River—I knew something of its back history, too—we never had any trouble at all that amounted to a row of pins with any sand coming down there. I do not know how much we had to pay, but we had lots of suits for damages brought against us for eroded banks. But we were not especially troubled with any sand at these dams. We were not especially troubled, as far as our navigation was concerned, with the sand at the mouth of the Kanawha as it came out into the Ohio River. There was a moderate amount there. But the sand that should have washed from those banks into the New River ought to have mainly brought up in the upper pool, up above the upper dam of that river, and ought to have given us a great deal of trouble if it had been coming down in large quantities.

Mr. LEVER. In order to get the force of your argument, let me ask what was the condition of the forested areas of the headwaters of the river?

Colonel BIXBY. The forests were on what we call the back sides of all of these hills—the gentle slopes. The steep slopes were too steep to carry many forests—that is, those right next to the river. They go up like that [indicating].

Mr. LEVER. In other words, the headwaters were forested?

Colonel BIXBY. It is all rock there on the steep slopes. It is a pretty tough climb from the water right up the hill. That has not got very much on it in the way of trees. When you get over on the other side and come down on the gentle slope, of course, that is all covered with trees.

Mr. LEVER. Colonel, have you ever had under your jurisdiction the rivers of the South Atlantic coast?

Colonel BIXBY. From the Roanoke River all the way down to the Santee River—that is, all of North Carolina, and a little piece of southern Virginia, and two-thirds of the river area of South Carolina.

Mr. LEVER. I thought I recalled your name in connection with the Santee River.

Colonel BIXBY. Yes; I established water gauges on every one of those rivers, at every railroad crossing, away back as far as 1886. I put them in to measure the water flows.

Mr. LEVER. As a matter of fact, Colonel, in the very nature of things, the duty of the engineers of the War Department is confined to the lower reaches of the river, rather than to the upper reaches of the river. Is not that true?

Colonel BIXBY. Yes; we take the floods after they get down.

Mr. LEVER. That is very true.

Colonel BIXBY. We handle them in the lower end.

Mr. LEVER. Do you happen to know anything about the intensity of the floods in the upper reaches of these rivers from your own personal observation?

Colonel BIXBY. While I was in North Carolina, of course, I had to watch the papers all the time, and the times when we looked out for floods were when the water would go up 20 feet in one day and 20 feet the next day at Fayetteville, or the same thing at Weldon, on the Roanoke. Then we began to look around for a flood, of course. But

we never heard of any floods equal to that anywhere else in the State. We caught them where they accumulated.

Mr. LEVER. The very nature of your duties, however, makes it almost impossible for you to have any very correct idea of the influence of forested mountains upon stream-flow, does it not?

Colonel BIXBY. Well, we kept tab on the water flow.

Mr. LEVER. Yes; but you would not necessarily know anything about the deforestation going on in the mountains? Your duties would not require you to look into that feature of it?

Colonel BIXBY. No; but when we want to see a record of a good, big flood on the Ohio or the Mississippi, we go back to the old days, to the oldest gauge record that we can find of a flood; and there is where we generally find the big floods.

The CHAIRMAN. Let me ask you this question in relation to the floods on the Roanoke, to which you referred a moment ago: Are you able to say whether those floods were due to the rapid run-off of water from the mountainous part of the watershed, or whether they resulted from heavy rainfalls lower down?

Colonel BIXBY. No; we always expect that they will come from the upper portion of the watershed, of course; because when the mouth of the river down at the sea is about so wide [indicating], and as you come back from the sea it goes out that way [indicating], like a palm-leaf fan, of course you have got to catch the water where you have your palm leaf, and then you look for a flood down in the stem. Of course, we always expect to see the biggest part of the watershed up there. But take, for example, the Missouri River: This last year they had one of the worst floods in the State of Missouri that they have had for years. They had some of those streams overflowing, and there were reports in the papers about towns being washed away, and people having to get to their houses in boats, and all that sort of thing. When I commenced to look into the matter, to see what the point was, I found that the water that was doing all of that damage was in streams that not only emptied into the Missouri River, but a good many of them started inside of the State of Missouri, or in the State of Iowa, or in Kansas, or in Nebraska, right close by. None of that flood that scared those people all to pieces came from up above Omaha. It was all local. It was all away down in the lower end of the Missouri River.

The CHAIRMAN. That happens frequently in the case of the Mississippi, does it not? When you have rains below Cairo they will flood the lower river?

Colonel BIXBY. Sometimes.

Mr. LEVER. Does that frequently happen in these rivers that flow into the Atlantic coast from the Appalachians or the White Mountains?

Colonel BIXBY. In the South Atlantic coast the streams are so short that of course the run-off is much quicker, and the floods come up quickly and go quickly.

Mr. LEVER. That is it exactly; and you look for your floods in the southern Appalachians and the White Mountains as coming from the mountains themselves? Is not that a fact, ordinarily?

Colonel BIXBY. Of course, on the South Atlantic coast the floods have to come from the ground in between the mountains and the coast; and the comparative distances over there are small compared

with some of the western country. They can not come from anywhere else, because there is not anywhere else that they can come from.

Mr. LEVER. That is the point exactly.

Colonel BIXBY. But it could be described just as well, and perhaps a good deal better, by saying that the flood comes from the middle land on the south Atlantic coast than by saying that it comes from the mountains. The area of North Carolina is like three or four steps of a staircase. Beginning at the sea, you have to go all the way to the Atlantic coast line, perhaps, or to Fayetteville, 120 miles, before you get over 35 feet above sea level. Then you come to a little jumping-off place; and that is the first step. The falls of the Roanoke at Weldon, and the falls of the Cape Fear River right up above Fayetteville, and the falls of the Catawba and the Yadkin, where they come out and go into South Carolina, are on the edge of the first step. You go up those falls and get up to the second step, and then you come over into that country that we all know about, because it is such a healthy country for the summer time—the pine-tree country. You go back of that step quite a distance and it is comparatively level. You go back there until you get almost to the foothills of the Alleghenies, and that is the second step. When you get to the foothills of the Alleghenies, then you begin to go up a little steeply; and then you get to the Alleghenies and you go up very steeply. Now, the majority of the area that collects water for those rivers is the area on that second step. If you go and measure up the area of the sidehills of the Alleghenies, from the foothills up to the top, you will not find it is as big as it is on the second step.

The CHAIRMAN. How far is the second step, the portion of it which is nearest to the mountains, from the sharp slopes leading out of the mountains?

Colonel BIXBY. I do not know whether or not you gentlemen know where Salisbury is, in North Carolina?

Mr. LEVER. I do.

Colonel BIXBY. There is about where your second step, the middle plateau, begins and ends; and from Salisbury up toward Lenoir you have gently ascending ground. When you get to Lenoir, you begin to go up very rapidly. When you are east of Salisbury you get on a comparatively gentle slope, from Salisbury down toward Raleigh and toward Weldon and toward Fayetteville; and that middle area is a big area.

The CHAIRMAN. You think the area which begins at Salisbury on the west, and extends east toward Weldon, is the area from which most of the water comes that floods the navigable portion of the stream?

Colonel BIXBY. That is my view of it; yes.

Mr. LEVER. How do you reconcile that with the fact that almost the heaviest precipitation in the country takes place on the third step?

Colonel BIXBY. It does not need any reconciling; it does not need any explanation. You see water running out of a sponge when you squeeze it, and it does not need any explanation. Every heavily laden cloud that strikes the Allegheny Mountains is cooled down by the mountains and has the water squeezed out of it, just as if it was a sponge and you had hold of it.

Mr. LEVER. Yes; that is very true. Would you not conclude, therefore, that the greater amount of water that goes into the streams that you describe comes from this very squeezed-out sponge that you speak of?

Colonel BIXBY. I lived in New England before I went South. I found different conditions there, and I had to learn my lessons over again. It was a different country. When I got to Wilmington, N. C., for three solid months in the summer time, the first year I was there, it rained bucketfuls for a few hours every day, right straight through the summer. That was rain that never got near the Alleghenies at all. That was on the lower level.

Mr. LEVER. Of course that is an unusual condition.

Colonel BIXBY. I did not think so. After I had been down there seven years I thought it was quite the average custom.

Mr. LAMB. Let me now, from a layman's view point, ask you some practical questions. I live on the James River. When we have a heavy fall of rain 40 or 50 miles above there, in this middle ground that you talk about, we have a small freshet. But when the news comes to us from Lynchburg that the tributaries of the river away above there are flooded and there have been heavy rains in the mountains, we look out for 15 feet of water in Richmond; and the merchants move their stuff out of the cellars, etc. If you know how high the flood is at Lynchburg you know how long it will take for it to get to Richmond. In the last thirty or forty years, since they have been denuding the mountain slopes and cutting off the timber and allowing the water to rush down with great velocity, not only is the high water from these floods distressing to the lands along the river, destroying them and filling them with sand and silt from the mountains, but it is distressing to Richmond itself, and Scottsville, and all those towns along there. How do you account for that? Is not that a fact that shows beyond question that the floods do come from the headwaters of these streams up in the mountains? And if we preserve the forests there and hold that water in check so that it will come off gradually, will we not reach results along the lines as we see them here? You have been on all of these rivers. Give us your views on that.

Colonel BIXBY. I should ascribe it more to the shape of the drainage area than to other things. I should ascribe it more especially to that. There are some drainage basins on the south Atlantic coast that, as I say, are fanlike; the bulk of the area is away from the coast. The bulk of the area which catches the rain is going to fire it down on you in large quantities, naturally, when you contract it, as it goes down to the coast and let it escape through a small outlet. There are a good many streams on the south Atlantic coast whose drainage areas run up to a sharp point, and they are not especially heard from. Nobody pays much attention to them, because the water is not contracted so much when it gets down to the mouth. It is not restricted so much; it has more chance to run off down at the mouth, and the area of the western slope of the basin is not anywhere near as large. Wherever you put your big area, of course, you are going to get your big water supply. I grant that when you put the area right up on the edge of the mountains you will get more water out of it than you will if you put the same area away from the moun-

tains. But the size and shape of that area is a very important element in the case. Any mountain range, of course, will squeeze water out of a damp cloud that blows against it.

That is the answer to your question.

The CHAIRMAN. Are you familiar with any records that may have been kept on the Roanoke and the Cape Fear and other rivers of the Atlantic coast with which you are acquainted, from which you would be able to say whether or not the floods have been more frequent in recent years than they were formerly?

Colonel BIXBY. I have not those records in my possession. They are in the engineer office.

Mr. LAMB. You will find them in the hearings of this committee—indisputable proof.

Mr. LEVER. Colonel Bixby, the navigability of a stream depends upon what, aside from the depth of water? I mean to bring out this point: Does not the navigability of a stream depend to a large extent upon the constancy of stream flow, the equilibrium of stream flow?

Colonel BIXBY. The navigability of the stream depends on the cross section of the water flow, especially at low-water stages, and on the current in the river, which is mainly dependent on its slope and to a less extent dependent on the quantity of the water; but it is very seldom that the stream becomes unnavigable because of the quantity of water that comes down it; and it is sometimes unnavigable, in fact, quite often, because of the excessive slope and the swiftness of its current; but take, for instance, Europe: The streams that are navigable over there do not have to have much water supply, because they are canalized.

Mr. LEVER. As a matter of fact, judging from a layman's point of view, I take it that the navigation of a stream would depend almost entirely upon the low-water flow of the stream. That is true, is it not? You have to have water to navigate water?

Colonel BIXBY. The canal in England just outside of Liverpool, that runs from Liverpool up to Manchester, some 50 miles, forms an artificial river, you might say, which is fed by the water flow from the old, small, natural rivers there. The water flow is a great deal less than 500 cubic feet a second; and yet it carries the biggest ocean vessels that can get into Liverpool. It requires only a very small amount of water flow because it is improved by modern methods of canalization.

Mr. LEVEVR. That is very true; but I am speaking of the rivers.

Colonel BIXBY. The natural rivers?

Mr. LEVER. I am speaking of the natural streams, not canals.

Colonel BIXBY. The navigability of a natural stream, of course, depends on all those three things: It depends on the quantity of water; it depends on the slope of the river; and it depends on the cross section of the stream, which in itself is dependent on the soil, the slope, and the water.

Mr. LEVER. And army engineers are about equally divided in their opinion as to whether or not deforestation upon the mountain slopes upon the headwaters of navigable streams has anything to do with decreasing the amount of water that normally flows down the stream?

Colonel BIXBY. There are so few of them that I have met that have thought that the water flow was seriously affected by the forests that

I do not remember any of them, except you told me right here a moment ago that Major Raymond said something about that. I do not know which Major Raymond it is, or what part of the country it is, or I would know more about it.

Mr. LEVER. Maj. Charles W. Raymond.

Colonel BIXBY. What year was it?

Mr. LEVER. It was in 1891. He was in charge of the West Branch of the Susquehanna River.

Colonel BIXBY. Oh, yes; yes.

Mr. LEVER. He makes that statement there very clearly. I put it into the record the other day. I understood you, though, to say in the beginning of your hearing that army engineers were about equally divided on this proposition.

Colonel BIXBY. If I said so, I did not mean it. What I meant to say was that engineers all over the world are fighting over this question, and even after discussion of a great many years, and with all of the information that they can get in the United States and abroad, there are still different opinions on the subject; and the net result, on the whole, is that the effect is practically nil.

Mr. LEVER. You know, of course, that the Milan Navigation Congress, to which you referred in the beginning of your remarks, was unanimous upon three propositions. Those three propositions are these:

Opinions being unanimous upon the point that forests exert a beneficial influence—

(a) Upon the consolidation of sloping grounds, by preventing the disastrous washing off materials to the bottom of the valley.

(b) Upon the formation and permanency of springs, at least in impermeable ground and on slopes.

(c) On the better régime of rivers, at least at the periods of their low water and ordinary flows.

That was the unanimous opinion of this Congress. Do you disagree with that opinion?

Colonel BIXBY. In the first place I do not believe it, because I have looked over the individual articles. That is only a summary.

Mr. LEVER. Yes; this is a summary.

Colonel BIXBY. I have looked over the originals, and I do not agree with the man that makes the summary.

The CHAIRMAN. You think that the conclusions are not warranted by the papers from which they are presumed to be drawn?

Colonel BIXBY. That is just it. When he says that they are unanimous in that opinion I do not admit it, because I have looked over a great many of those articles myself in order to draw my own conclusions, and my conclusions do not agree with his conclusions.

The CHAIRMAN. Your statement a moment ago, in substance, was that after all the discussion pending throughout long years among engineers all over the world, the consensus of opinion was that forestation or deforestation was a negligible quantity so far as navigation was concerned?

Colonel BIXBY. So far as navigation was concerned. That is the result of my reading of the past twenty years, by looking over these articles myself. I have looked over the summary, and I have looked over the articles. I do not agree with the summary after having read the articles.

Mr. LEVER. Do you happen to know this man, Cippoletti, or whatever his name is?

Colonel BIXBY. His name is familiar to me.

Mr. LEVER. His name is familiar you say? Is he an eminent engineer?

Colonel BIXBY. Every one of those men that was engaged in this discussion considered himself eminent. [Laughter.]

Mr. LEVER. I know; but how would you consider him?

Colonel BIXBY. I do not know him well enough to say; but there is not a single man that had a paper before that congress that would acknowledge that he did not know as much about it as the rest of them. [Laughter.]

Mr. LEVER. Of course; that is natural.

Colonel BIXBY. I side with some of them and I do not side with the others.

Capt. EDWARD N. JOHNSTON. I have just handed the chairman a paper in relation to the Milan congress, by Major Newcomer, of Pittsburg, in which he gives an abstract of what some of these people said, a summary of whose conclusions Mr. Lever read. It seems to be quite apropos just at this particular moment.

The CHAIRMAN. In a few words, does it confirm or contradict the summary which Mr. Lever has read?

Captain JOHNSTON. I read it at home last night, and it seemed to be entirely different from the summary read by Mr. Lever.

Mr. LEVER. Whose statement is this?

Captain JOHNSTON. This is by Major Newcomer. It is not his statement, but it is his abstract of what these people said at this time.

The CHAIRMAN. In other words, you would agree with Colonel Bixby that the papers themselves do not warrant the conclusions expressed in the summary which Mr. Lever has read?

Captain JOHNSTON. No, sir; because I have not read the papers, so I have no opinion to express. But Major Newcomer is one of our most careful, painstaking officers, and his abstract is entirely different.

Mr. LEVER. We happen to have the original papers here, Mr. Chairman, and we will put those papers into the record.

Captain JOHNSTON. Of course this is entirely informal on my part. I thought the suggestion was apropos, because it was a subject under discussion.

Mr. LEVER. It is.

Colonel BIXBY. I should like to put in one word here, and that is this: I not only looked over the original papers, but I also saw in one of the engineering journals abstracts of the different men's articles, followed by a résumé by the man who submitted the articles; and he then drew a certain conclusion from them, which was very much like this conclusion that has just been read here. Then I went back all over the quotations that he had made, and for the life of me I could not see how he got his results; but I suppose he knew. I did not. I read them just as this engineer did, and I could not agree with him.

It is just like this: When I was a cadet at the Military Academy and had to instruct a man in my own room in mathematics and he did not know about his geometry, I showed him the first step: "Granted the data, the second step followed." "Yes." "Granted B, C follows." "Yes." "Granted C, D follows." "Yes." "Now," I said, "you see all those three points clearly, do you not?" "Yes." "Now," I

said, "is not the result that if A is true, D is true?" "I don't see it at all; I don't see it at all." I worked on him for three hours; and he could see that the three steps were all right, but he could not see that the fourth followed from the first.

That was the feeling I had when I read over this summary that the gentleman is speaking of. It is the feeling I had when I read it over in the *Engineering News*—that the fellow that was drawing the summary was like my friend at West Point. It was as somebody said—he liked to be able, when he got through, to vote in accordance with his sentiments.

THE CHAIRMAN. Has any member of the committee any further questions to ask Colonel Bixby? There is only one subject, Colonel, that was brought before us yesterday upon which I should like to ask just one or two questions. I should like to ask you whether it is generally accepted as true among engineers that the run-off in a river may be different at different times with the same gauge reading—whether the volume of flow may be different at different times while the height of the river remains the same?

Colonel BIXBY. That gets down again into the question of the first differential. If you are going into fine points, you can strike different conditions. You can go up on the Missouri River and go down on the Mississippi River and go down even on the Ohio River in places, and while your gauge stays the same unfortunately the bottom of your river does not; and the cross section of the river may be different, although the gauge reads the same. Some men are wise enough to look that up; other men are not wise enough to look it up; and you never know whether the results of the different men are based on careful examination of the bed of the stream or are based on the story of somebody else who tells where the water stood, but does not tell what the bed of the stream has done.

Mr. STANLEY. Colonel, right there, is it true that you may have a different velocity in the current on account of the different character of the flow of the stream with the same gauge reading? For instance, does it often happen that on account of the fact that you have no water below, there will be a much more rapid current in the channel, say, at 14 feet, than there is in the same channel at 14 feet when there is backwater below?

Colonel BIXBY. Yes, sir; those things are true. As I say, they are down in the differentials. The velocity depends on the slope. If you make the bed of the river, as I said, like a concrete sewer, of a definite length, big enough to amount to something, with a fixed and permanent bottom, and make observations as to how much water flows through it at different heights of water above the bottom, you can be dead certain that ever afterwards the same height of river will give the same quantity; the same stage will give the same flow. But if you shrink it up so that it is only a foot or two long and let the water from a flood pile up higher on the high-stream side than you have already got it up on the low-stream side you get an entirely different condition. And if the bottom is not of cement, if it is soft and easily dug away, then you get other results also.

Mr. STANLEY. Does the Government keep any records of the various velocities of the currents as well as of the gaugings?

Colonel BIXBY. On some rivers they have very good, reliable velocity measurements. On other rivers they are very crude.

Mr. STANLEY. Have you any velocity measurements on the Ohio?

Colonel BIXBY. I do not know about the recent velocity measurements on the Ohio. There have been a great many velocity measurements on the Mississippi, and very carefully made.

Mr. STANLEY. Would the present system of locking and damming on the Ohio (of which I heartily approve, as everybody does) make it more necessary that there should be velocity measurements than if it were not done?

Colonel BIXBY. No; no. I think the improvement of every stream makes it less necessary to keep track of the velocities. The only thing you really have to do in those cases is to establish better telegraphic or telephonic service with the upstream sections, to know when the flood is coming; to find out how soon it is going to come off.

The CHAIRMAN. The committee are very much obliged to you for the information you have given the committee.

Colonel BIXBY. May I take one moment further to answer a question which was asked before, as a matter of information to those who want to know?

The CHAIRMAN. Certainly.

Colonel BIXBY. The average low-water depth along the Mississippi River, taking the deep places and the shallow places, is 18 feet from St. Louis to Cairo. At low water the depth on the bars without any dredging may go down to $4\frac{1}{2}$ feet. With dredging it is maintained at 8 feet. The average depth in the river from Cairo to Memphis is 31 feet. After freshets and at near low waters that depth may get down to $6\frac{1}{2}$ or 7 feet; but it is immediately restored to 9 feet in the channel across the bar by the dredges. From Memphis to Vicksburg the average depth is 37 feet. After the freshets, and at low water, the depth on the controlling bars is only $6\frac{1}{2}$ or 7 feet, and it is restored by dredging to 9 feet. From Vicksburg to the Red River the average depth is 48 feet. The same remark applies about the depth on the bars and the dredging. From the Red River to New Orleans the average depth is 84 feet, with at least 30 feet on the bars every day of the year, and 150 to 200 feet depth in different places in the channel.

The Missouri and the Mississippi—the upper and lower Mississippi—are peculiar rivers in this way: The bottom is movable material. They are what the French call rivers with movable bottoms. Every time a freshet comes along it digs up the material right around, handy, and piles it up on the bar until the freshet goes by and the current begins to slow down. Then, when the river gets about two-thirds down to low water, you have the worst river condition that the river knows. Then it begins to cut a channel across the bar and scours it out; and at dead low water you have a fairly good depth in that same river. That up-and-down motion of the bar is due to the material that is right around, handy, between that bar and the one up above. It is piled up on it; and when you hear stories about the depth of rivers with movable bottoms, you can not tell much of anything about it. But I will give you this illustration:

Two years ago the snag boat went up from St. Louis to the mouth of the Yellowstone to snag the river. It went up at almost dead low water, after quite a period of low water. There was a good 4-foot channel everywhere in the river, all the way up to the mouth of the Yellowstone. As the boat got up near the mouth of the Yellowstone,

there came along one of these rises; the water went up to about 12 or 13 feet, and then it commenced to fall. After it got down to about 5 feet we started down the river with this snag boat, which drew just 2½ feet. We were coming down at a stage of between 5 feet and 4 feet. There was already 4 feet in the river at dead low water, and the river was 4½ feet higher than dead low water. That makes 8½ feet to the outside layman. (I do not say, of course, that there was 8½ feet depth of water in that channel.) As a matter of fact, we stuck on 10 or 15 bars when we were in the deepest water that there was in the river; and we had great difficulty in squeezing over with a draft of 2½ feet. In other words, the bars were standing at a level that was 5 or 6 feet above their previous level, or about 2 feet above the low water. Those bars had been formed by material that had been dug up from right near by, handily, during the rise, and carried along in the swift current; and as soon as the current began to slacken it was dumped on the first bad place in the river, which is always the place that a bar picks out to form. Of course it was dumped right then and there.

Mr. STANLEY. What river was that?

Colonel BIXBY. The Missouri. Then, as the water falls further, it begins to pick out a good route through the bar, scouring out its own channel; and with only 2½ feet on the bar at the 5-foot stage, you will find that it deepens and deepens as it goes along to dead low water; and at dead low water you need not be surprised to find a 4-foot stage. In other words you have a foot and a half more water in the channel at dead low water than you have when the water is 5 feet above low-water level.

Those are things that the outsider does not understand. Somebody tells him about drift in the rivers, and about there not being as much water now as there was before, or about there being more now than there was before, or something of that sort. He has to know all about these conditions, and know just when it was that the man measured the low water, or he can not speak for the average of the year, and he can not speak for the low-water season. So we get all sorts of mixed-up situations, and have to spend a lot of time straightening them out. Then we try to form our ideas of the thing after we have straightened it out as well as we know how in our minds.

The CHAIRMAN. We are very much obliged to you, Colonel Bixby.

STATEMENT OF CAPT. EDWARD N. JOHNSTON, U. S. ARMY.

The CHAIRMAN. Captain Johnston, will you state, for the information of the committee, just what your duties are in the Engineer's Office, with a view to making it clear whether or not you are familiar with the reports and the literature on the subject we have under discussion?

Captain JOHNSTON. I am at present on duty as Assistant to the Chief of Engineers, in what is called the River and Harbor Division of the office, Major Cavanaugh and I being the officers on duty in that division.

The CHAIRMAN. Will you proceed, then, in your own way, to give us a summary of the literature on this subject with which you are familiar, and the substance of any reports that may not have been published, as well as any reports that have been published?

Captain JOHNSTON. I would like to say that the War Department, as a department, has made no investigation of this question of forestry as related to navigation, not having been ordered to do so by Congress or other competent authority, and not having felt that the evidence of intimate connection was as yet sufficient to warrant the making of a thorough investigation upon the initiative of the department alone. Any opinions that have been expressed, either orally or in writing, by any officers of the Corps of Engineers have been made solely on their own responsibility, and have in no way had the sanction of the department. Of course, certain engineers may have personal opinions in agreement with those expressed by others, but there has been no general investigation of the subject, such as we make when reporting to Congress in connection with all of the improvements that are ordered by Congress.

After Colonel Chittenden's paper was published as an engineering article in the Proceedings of the American Society of Civil Engineers (of which, I believe, he was a member), the department was subjected to considerable criticism because of that article. The foregoing statement is made in order to clear up for the benefit of the committee any misapprehension on the subject.

At the conclusion of Colonel Chittenden's first article he made the following statement:

The author should possibly state, in justice to the official body of engineers to which he belongs, that the arguments presented in the foregoing paper are his individual opinions only. He is not acquainted with the views of any other officer upon the subjects treated, except as he has seen them expressed in official reports or in the public press.

A year or two ago, however, all of our officers received letters from the Forester asking them for opinions on the relation between forests and stream flow. There had been so much talk in the public press and elsewhere on this subject that certain of the officers made such investigations as they properly could under the laws governing the expenditure of money for river and harbor improvements, not being able to use those funds for a thorough investigation of the question. Certain officers who had made these investigations submitted, for the information of the department, the results of such investigations as they could make—in other words, reports of what they had been able to learn as to the bearing of forestation upon the improvements in the districts under their charge. The committee, I know, is interested in the Merrimac River. Colonel Burr, at Boston, has been making an investigation of that river along this line, but as yet he has submitted no report on the subject. I understand that in the case of the Merrimac the records of stream flow go back probably as far as anywhere in the country, and I imagine that when his investigation is completed it will be of value.

Major Harts, of the Corps of Engineers, now in charge of the Nashville and Chattanooga districts, has made a report upon the Cumberland and Tennessee rivers, which I have with me.

Colonel Rossell, who has recently been relieved from duty at Cincinnati, Ohio, submitted a voluminous report on the Ohio Valley proposition, prepared by Mr. Charles C. Cooper, of Colonel Rossell's office.

Major Newcomer, at Pittsburg, made a report concerning the Allegheny and Monongahela rivers.

These reports, with the exception of Major Newcomer's report (which, I think, was furnished to the chairman of this committee by his request), have been retained in our office—Colonel Rossell's, I see, since the middle of last June. We had no idea of having them published, as the department desired to take no position in the matter of forests and streams either for or against the forest proposition; and they are brought here by me to-day in response to the request of the chairman of this committee for such information as we might have on the subject.

Perhaps the most definite position of the engineers of the corps on this subject has been, during the past year or two, a feeling of irritation at the fact that certain parties interested in forests, or others, have deemed it necessary to criticize the methods which have been followed up to the present time in the improvement of streams by the Engineer Department. Our hair bristled up, perhaps quite naturally, at some of these criticisms, and also because we feel that this committee has been furnished, probably unintentionally, with a considerable amount of misinformation on these subjects.

I have here, for instance, a report of the Secretary of Agriculture. My statement as to misinformation does not apply to this report. I simply wish to quote this:

Desirous of securing the most competent authority on every phase of the question, I have gone outside of the government service to secure from Prof. L. C. Glenn, of Vanderbilt University, of Nashville, Tenn., the results of a three-years' study of soil erosion in the southern Appalachians, etc.

I understand that Professor Glenn appeared before the committee at this session. I do not know anything about that. This is from a report of 1908 by the Secretary of Agriculture. But I have a record of a hearing before this committee on January 30, 1908, at which certain persons were heard—among them Mr. L. C. Glenn, of Vanderbilt University.

Among other things Mr. Glenn stated as follows:

I will take the Tennessee River. It is the largest and most important one, and it is a fair type of the rest of them. At Knoxville, Tenn., the head of navigation on the river, 650 miles above its mouth, I found a government fleet there—not one or two boats, but a fleet—engaged in dredging the channel and keeping it navigable. They dredge on a bar this summer, and they go back next summer and dredge the same bar. It fills up as fast as it is dredged out, and it is practically an unending work. They are receiving the effects of the erosion of the steep mountain slopes. They are helpless.

* * * * *

The natural fill becomes concentrated along the side of the island, and it is there that bars begin forming, and it is there that the United States Army engineers must step in and begin with their dams and locks and spend millions of dollars in improvement.

In a report submitted in 1832, I think, printed in 1875, by S. H. Long, lieutenant-colonel, Topographical Engineers, he submits the result of his examination of the Tennessee River with a view to its proper improvement; and he names certain shallows, starting about Knoxville:

No. 2. Lyons Shoals. These shoals are created by an extensive rocky bar, etc.

I will not go on with the rest of that.

No. 3. Williams Shoals. These shoals are situated at a cluster of islands of the same name, at the head of which the shoals commence on a broad, gravelly bar. * * * The lower part of the channel across this bar is also obstructed by rocks, in the way of descending boats.

That will do for that.

No. 4. Little River Shoals. * * * They are occasioned by an extensive bar of rock and gravel. * * *

No. 5. Wrights Shoals. These shoals are occasioned by two bars extending quite across the river; the one a gravelly bar situated at the head of Wrights Island, and the other a bar of rock and gravel a little above the foot of the island.

I do not think it will be necessary to read any more. I think this is perhaps sufficient to show that the great majority of these shoals between Knoxville and, say, down to Chattanooga, which have been improved up to the present time by the Government, are hard shoals or rock shoals.

Mr. LEVER. When was that report made, Captain Johnston? In 1832, did you say?

Captain JOHNSTON. On the outside it says "In 1830" in print, and somebody has put "1832" in pencil beneath it. There is no date at the head of his report, and I suppose it is at the back, but in order to save the committee's time; I did not look, but I will see.

Mr. LEVER. At any rate, it is somewhere around 1830 or 1832?

Captain JOHNSTON. It was about that time. I see, however, that there is no date on the paper itself.

Mr. LEVER. And it was printed in 1875?

Captain JOHNSTON. It was printed in 1875.

Mr. LEVER. Of course a great many changes could take place in that length of time.

Captain JOHNSTON. I have no argument at all to make on the subject.

Here is a report on a survey of the French Broad River, which was submitted by the Secretary of War to the Speaker of the House of Representatives on April 16, 1900:

The river is generally free from sand bars, though small gravel bars are sometimes found in the sheltered portions about the islands, but the indications are that only a small amount of detritus is transported by the water, and this is largely derived from the tributaries.

Another quotation:

In the case of a river like the French Broad, however, where the banks are stable and the bottom—wherever improvement is necessary—is almost invariably composed of solid rock, these difficulties are largely eliminated, and the problem becomes a definite one and the results can be easily foreseen and definitely relied upon.

Mr. LEVER. The headwaters of that river lie in the Biltmore estate and around Toxaway and that forested country, do they not?

Captain JOHNSTON. I would prefer to quote from the report:

The French Broad River rises in North Carolina, flows generally in a westerly direction, and finally unites with the Holston River, in the State of Tennessee, to form the Tennessee River.

Does that answer the question?

Mr. LEVER. Yes.

Captain JOHNSTON. Here is a report of a survey of the Tennessee River from Scott Point to Lock A. That is what we call the middle section of the Tennessee River, from Scott Point (a point a short distance below Chattanooga, as I remember) to the head of Muscle Shoals Canal, Alabama, the lower extremity of what we call the "middle section" of Tennessee. This is a report submitted by Major

Kingman, at that time in charge of the improvement of the Tennessee River, stationed at Chattanooga.

The CHAIRMAN. On what date?

Captain JOHNSTON. Major Kingman's report is dated March 25, 1901.

The only obstruction to navigation, therefore, is found in these shoal places where, at low water, the depth is insufficient. The bottom of the river is generally composed of loose rock, gravel, and clay, though occasionally it is formed of solid rock in place. The banks are unusually firm and stable; they are covered with large trees, growing nearly down to the low-water level, clearly demonstrating their stable character and the fact that the high-water periods are infrequent and of short duration.

A comparison of the results of the present survey with the former examinations and reconnaissances indicates that there has been no change perceptible in the obstacles to navigation. The same shoals exist, with the same depth of water upon them, and this is what would be inferred from the character of the bottom and banks of the river. There is little or no bar-making material travelling downward in the river bed; there are no caving banks, and consequently no changes in the shape of the channel. * * *

I am of the opinion that the river is worthy of such an improvement at such a cost—

That is, a lock-and-dam improvement—

Provided it were necessary; but, owing to the abundant discharge of the river, and the very moderate fall, and the comparatively insignificant character of the obstructions, a sufficient depth and a sufficiently moderate current for all purposes of navigation can certainly be secured by an improvement by regulation at a very much less cost than by a slack-water improvement.

* * * * *

Now, in the case of the Tennessee River, it is found in the section under consideration, that there is little or no moving material in the bed of the stream. It is also found that the bed of the stream is so hard and of such a firm character that there is little or no danger that it will be cut out by the moderate increase of current which it may be necessary to bring about in order to secure a sufficient depth of water on the bars.

Mr. LAMB. Mr. Chairman, is all this matter germane to this discussion? I submit it to the committee.

The CHAIRMAN. It strikes me that it is germane. It tends to show the character of these bars, and whether or not they are formed by drifting material or are of a permanent character.

Mr. STANLEY. I should think it was germane, in justice to the Engineering Corps, if they have been unjustly criticized before the committee.

Mr. LAMB. That is another question.

The CHAIRMAN. As I understand, Captain Johnston is reading these reports to rebut the statement made by Professor Glenn last year that the Engineer Corps was engaged in an endless task of digging out.

Captain JOHNSTON. A "hopeless task;" that we had "thrown up our hands." That is practically what he told the committee.

Mr. STANLEY. Not only Professor Glenn, but a great many other people have indulged in a great deal of gratuitous criticism of the methods of the Engineering Corps in improving streams, which I thought was absolutely unnecessary and unwarranted.

The CHAIRMAN. I think the germaneness of this matter may be shown by just one question which I wish to ask. That is whether you know that the conditions described in the last report you have read,

and all the preceding reports, are practically the same as those that prevail now?

Mr. LEVER. I was just about to ask that question myself, Mr. Chairman.

Captain JOHNSTON. By the act of March 3, 1909, Congress ordered a survey of the Tennessee River with a view to its comprehensive improvement. That report has not been made as yet by Major Harts, although I understand it is nearly completed; and the report will undoubtedly show present conditions. But I have not available here absolute facts to show that the same conditions exist. In fact, the same conditions do not exist, because in the last nine years we have done a considerable amount of rock removal and other work on this part of the river, which has greatly improved the conditions.

The CHAIRMAN. The point of my question is this: I assume that from the fact that one of these reports that you quote goes back as far as 1830 and the latest one is dated as far back as 1901 it might be argued that since that time the watershed of the river had been deforested to such an extent that a very different condition now exists, and that detritus may be washing down now which was not encountered when those reports were written. Have you any information on that subject?

Mr. LEVER. I should like to ask the question, Mr. Chairman, if you please, whether or not Captain Johnston has any report as to the condition of the watershed of this river now as compared with the condition as it existed when this report was made? If he has any such knowledge, then of course this matter is all germane.

Captain JOHNSTON. I might say that I have not made a business of hunting up these propositions. The reports which I have here I have simply picked up. I spent all yesterday morning here, and yesterday afternoon except for an hour, doing other things; so practically all this data has been collected in a very short time. I found this report of 1901 yesterday afternoon and I did not look any further. But our annual report every year gives in brief terms the general status of the proposition. There is one little quotation here that may be of interest. This is in the upper section of the Tennessee.

The CHAIRMAN. What is the date of that report?

Captain JOHNSTON. July, 1909. This is from the Annual Report of the Chief of Engineers for 1909:

Operations in recent years have been mainly concentrated at the formidable series of obstructions extending from Caney Creek shoals (about 98 miles above Chattanooga) downstream for a distance of about 8 miles.

This is between Knoxville and Chattanooga.

The projected works in that vicinity are well advanced toward completion, and a marked increase in channel depths has been obtained.

I read these extracts merely to reenforce the statement I want to make, that a great deal of the money spent on the upper part of the Tennessee River has gone for rock removal and removal of bowlders and hard material; also in the construction of wing dams, which concentrate the flow of water over these hard shoals, thereby deepening it, and not in dredging, which caused the engineers to throw up their hands in disgust, which is practically what Professor Glenn stated.

Mr. STANLEY. Therefore very little dredging—in fact, almost none—has to be done again on account of the rapid filling up of the channel, as is the case on the Mississippi?

Captain JOHNSTON. I will simply refer the committee to Colonel Kingman's statement, as made in his report, which is, as I recall it (I read it a few minutes ago), that the amount of detritus in the Tennessee is very small. I have with me no other data on the subject that I can put my hands on.

Mr. LEVER. As a matter of fact, Captain Johnston, the Engineer Corps does not deal with the watershed conditions of the rivers at all, does it? It does not know anything about it, does it? Is that true?

Captain JOHNSTON. Well, I suppose that is a matter of opinion.

Mr. LEVER. No; it is a matter of fact.

Mr. COCKS. Why, they deal with the result.

Mr. LEVER. That is it exactly.

Captain JOHNSTON. Mr. Chairman, to continue from Professor Glenn's testimony:

I have here a table, which I will not read, giving the streams in the South that are navigable, the length of navigation in each one, and the total expenditures of the United States Government in 1790 to 1907, inclusive. On that Tennessee River over \$8,000,000 have been spent. Under present conditions there is no chance to permanently improve that navigable channel, because of the incessant inrush of the sand and gravel. If the material is checked before it ever starts, up in the mountains, and kept there by keeping forests on those steep slopes that ought never to be cleared, then the necessity for this constant dredging would be greatly decreased or perhaps obliterated entirely. Merely as a business proposition, is it better to bale out sand forever from the stream and take no means for preventing it from getting in there, or is it better to go to the root of the trouble and hold the sand where it was made on those steep mountain slopes, and keep it from ever getting down into navigable streams? I have not time to speak further.

Here is a tabulated statement relating to internal waterways improved by the United States Government, prepared for the National Waterways Commission, composed (as you know, of course), of Senators and Representatives in Congress. This gives, among other data, the details of expenditures on all the inland waterways of the United States. The amount expended on the Tennessee River includes \$638,557 on the upper section above Chattanooga, which was expended in what we call the open-channel work, some dredging, the construction of dikes over these rocky bars, and a considerable amount of rock removal. In the middle section of the Tennessee River, between Chattanooga and Riverton, there has been expended \$7,173,174. In this section for open-channel work the amount expended has been only \$718,000. For canal construction on this middle section there has been expended \$5,288,000. For the operation of the Muscle Shoals Canal (one of the two canals constructed on that section) there has been expended \$1,119,804. For the Hale's Bar lock and dam (a short distance below Chattanooga, still under construction) there has been expended by the Government \$47,370, and a considerably larger amount has been expended by private interests. The Muscle Shoals Canal was constructed by the Government at a cost, as I said, of about \$5,300,000. The river at that section was originally, I think, at low water, about 1 foot in depth, the water flowing over rocky obstructions, absolutely impassable at low water. Farther down the river, just above Riverton, the department has nearly completed the Colbert Shoals Canal, a lateral canal around

the Colbert and Bee Tree shoals. For about six months in the year the river there was absolutely impassable for navigation by reason of rocky reefs and rapids.

From the above figures it can be seen that the total amount spent on the whole Tennessee River, from the beginning up to last year, for what we call open-channel work—for dredging and for dikes to contract the flow and thereby increase the depth over these rocky bars, rock removal, etc.—has been about \$1,700,000; and the results have undoubtedly been good. There is no question about that. And this \$1,700,000 should be contrasted with Professor Glenn's inference of over \$8,000,000 having been wasted.

Mr. LAMB. That would be fine for the Rivers and Harbors Committee.

The CHAIRMAN. I think it is exceedingly pertinent to this inquiry. The statement was made here that it had cost \$8,000,000 to dig out of the Tennessee River the detritus that had washed down from the slopes. It is certainly a matter of extreme importance to find out whether that \$8,000,000 was spent for digging out material which was washed in on account of the denudation of the slopes, or whether the greater part of it was spent in the construction of canals and locks and dams which would have had to be constructed whether there was any wash from the slopes or not.

Mr. STANLEY. A great many of us are favorable to this conservation project. We realize, however, that nothing has been done to hurt it as much as effusions like that of Professor Glenn, who goes out of his way to criticise the expenditures of the Government for river and harbor improvements. As between the two, there are a great many of us who believe that the river and harbor improvement is the more necessary. And I think, as a friend of the project, that there has not been anything done to hurt it with the public and with the committee as much as statements of the character of those that are now being refuted and answered. For this reason I do not think I have heard anything since I have been in the committee more pertinent to the question. It is better for us to know the truth.

The CHAIRMAN. Proceed.

Captain JOHNSTON. On page 748 of the hearings of this committee on January 30, 1908, is given some of the testimony by Professor Swain. I understand he is a professor of civil engineering at the Massachusetts Institute of Technology.

I have some figures here which have been prepared by the Department of Agriculture with reference to the sums which have been expended by the Government on streams draining the White Mountain Reservation as it is proposed, and the sums which have been expended by the Government for the improvement of navigation, which I should like to submit to the committee. These figures give the number of miles of navigable water in these streams and the appropriations by the Government from 1790 to 1907, which amount to \$2,577,000, a total cost of improvement per mile of about \$17,000. The striking figure is the average tonnage on the river in 1905 for each dollar spent by the Government for improvement, which is just about half a ton.

On page 802 is this table which Mr. Swain stated was prepared by the Agricultural Department. The table includes the Kennebec River, the Androscoggin, the Saco, the Merrimac, and the Connecticut. It charges against the tonnage for the year 1905 (one year) the total cost of improvements from 1790 to 1907—undoubtedly an unjust reflection on the Congress of the United States. If you

want to get at the cost per ton of commerce you should take the commerce back to 1790; or, failing in that for lack of records, you should take only the cost back to the date when the records of commerce commence. I do not think there is any question about that. Moreover, this table includes the Saco River, Maine. I have not had time or inclination to look into the case particularly.

The Saco is given here as having 5 miles of navigable water. I have looked into it enough to know that the range of tide is about 9 feet, and that most of the money spent on that river has been spent for a breakwater and jetty at the mouth, to prevent the washing of sand down the coast and the formation of a bar at the mouth of the Saco River.

The CHAIRMAN. You mean the formation of the bar by sand being washed in from the coast, and not being washed down the river?

Captain JOHNSTON. Yes, sir; due to littoral drift, wave action, etc. What this has to do with the question of forestation I do not know; but I do not submit that proposition. I simply invite attention to the fact that it was submitted by Professor Swayne as part of his evidence.

With regard to the Tennessee River, if we can come back to that for just a second, I forgot to mention one thing. However, I think I have said enough about the Tennessee. I just wanted to find a statement in here in which Major Kingman compared the estimated cost of the proper improvement of the Tennessee with that of most of the rivers of Europe, and showed that its proper improvement will cost very much less per mile than some of the principal rivers of Europe. I read that last evening; but unless the committee desires it, I will not take the time to find it again in this document.

Mr. STANLEY. In this report on the Ohio River by Colonel Rossell, what position does he take with reference to the effect of deforestation upon the accumulation of silt?

Captain JOHNSTON. Perhaps you would like to have me read just about a page and a half of his conclusions?

Mr. STANLEY. Yes.

The CHAIRMAN. That is exactly what we want.

Captain JOHNSTON. I had not read it until the last three or four days; but I read it through, I think, two or three days ago. If you ask what position he took, I will say it impressed me as being a judicial position. He was not arguing for or against the matter, but seemed to have made a very thorough investigation, as the members of the committee will no doubt agree when they look over the report. I should like to read just this one paragraph as bearing on some questions which the committee asked Professor Moore:

Danger lines are arbitrary stages, and the percentage of floods depends in part upon whether a high or low danger line is assumed. This is specially pertinent to Marietta, Ohio, where daily river stages were formerly reported to the Weather Bureau office, the danger line being given in the old reports as 25 feet. Such a stage has been assumed as a danger line in the computations of flood data at Marietta, but it is, however, entirely too low, and it would be proper to consider 35 feet as the danger line.

Low water: Following is a consolidated table of extreme low-water records for given periods, and appended at the end of this paper are tables exhibiting changes in stream flow in detail. The low water at Pittsburg has not been given, as this has been affected by Davis Island Dam.

That is, since 1885, when that dam was completed.

At Wheeling, Marietta, and Paducah, there has been a decrease in the average low water. However, at Parkersburg—

Wheeling and Marietta, where he says there is a decrease in the average low water, are on the upper part of the river. I mention that because that is an argument on one side of the question, and perhaps something else would be an argument on the other side.

However, at Parkersburg, Point Pleasant, Catlettsburg, Portsmouth, Cincinnati, Louisville, and Evansville, there has been an increase, in some cases rather marked. It may be assumed, therefore, that if the low-water depths of the Ohio River have been affected by deforestation, change in precipitation, etc., it has not been in the nature of a decrease in such depth, but rather an increase.

That is, he is considering the middle and lower parts of the river.

Low-water depths are dependent upon so many varying conditions that it would not be safe to state that there had been any decided increase in such depths; it can be stated, however, that there has been no decrease in such depths. The improvements that have been made in the river have increased the low-water depths at certain places, but the increase as shown in the table can not be entirely explained by attributing the same to the effect of improvements.

There were many periods of very low water before the dates given in the table, but low-water marks were not recorded as accurately or as generally as high-water marks, and no attempt at the compilation of a table of early low waters similar to the table of early floods (herein) has been made. It is sufficient to state that extreme low-water stages have not been confined to any one period.

* * * * *

Conclusions: It is believed that the data collected and correlated in this paper warrant the following conclusions:

1. That deforestation in the Ohio Valley has progressed at a rapid pace.
2. That in general there has been an increase in the frequency of floods in the upper half of the Ohio River.
3. That in general there has been an increase in the intensity of floods in the Ohio River.

In another part of the report he defines what is meant by "intensity;" and I think he divided the sum of the heights of floods by the number of floods, and thus got the average height of floods.

4. That in general there has *not* been a decrease in the low-water depths in the Ohio River.
5. That there has been a marked contraction of the channel of the Ohio River at various places, which has specially affected stream flow.
6. That both the surface and subsoil drainage of swamps and farms has resulted in important changes in run-off.

While the data at hand will not fully warrant the following conclusions, they are given as well-founded presumptions from the facts correlated:

1. That the problems of run-off are still matters of theory, the probability being that forests retard run-off up to the point of saturation of the soil, with its covering of humus and waste, and that after the point of saturation has been reached there is no difference in run-off.
2. That floods depend directly upon:
 - (a) The amount of precipitation.
 - (b) The temperature before and after snow and rainfall.
 - (c) The route of the storm.
3. That there is a tendency to increase in low-water depths.
4. That the effect of deforestation in causing an increase in the frequency and intensity of floods has not been established, and as yet is indeterminate from the data at hand.
5. That if it be later established that deforestation increases flood frequency and intensity, the effect will be found to be small upon a waterway the size of the Ohio River.
6. That the increase in flood frequency and intensity discernible at the present time is due to the contraction of channel at certain places and the drainage of farm land and swamps.

The CHAIRMAN. Right in that same connection—unless it interrupts the plan which you have in your mind—would you be able to summarize in a similar way any of the other reports to which you alluded in the beginning?

Captain JOHNSTON. I have a very few more, sir. Major Harts's report on the Cumberland and Tennessee I have here. I will try to read just the pertinent parts.

The CHAIRMAN. Yes; if you will.

Captain JOHNSTON. He describes the rivers and their drainage areas, and says:

Exact information as to the areas under forest cover at the present time is very meager, and many efforts to obtain even a close approximation were fruitless, so that the estimates of forested areas given herein are largely based upon conjectures. From the best information available, I should say that the proportion of the drainage basins of these streams under forest cover would now be in the neighborhood of 60 per cent. The increase in cleared areas within the past twenty-five years, including tracts deforested for the sake of lumber, may perhaps amount to as much as 20 per cent.

The most active lumber operations in the upper drainage basins of these rivers have been carried on within the last twenty years, although lumber began to be cut in large quantities as far back as the early seventies. Lumbermen state that in 1906 far more timber was cut in these drainage areas than in any other year on record. Before the seventies the forested areas in the mountain regions were practically the same as before the advent of the white settlers, deforestation having been slight up to that time; so that a comparison of the river conditions from about 1875 to the present day should show what changes, if any, have resulted from the reported wholesale destruction of our forests. In order to facilitate such comparisons I have had prepared a chart showing the rainfall records and river stages at three places on the Cumberland River, by months, and a similar one for the Tennessee River.

I might perhaps interject one remark here, so as to call attention to the fact that this is by months and not by years. In the consideration of this subject, as it has appeared to me, the amount of rainfall in a given year will not be specially valuable. The rain in one year may all come, say, inside of a few days (though that is perhaps an extreme case); whereas, in another year it may be spread out. So far as floods are concerned, the question of the distribution of the precipitation has appeared to me to be of considerable importance; and any discussion which takes monthly records is, of course, more valuable than one which takes yearly records. I do not know whether any of the other discussions before the Committee have had only yearly or have had monthly or daily records; but I think that is of considerable importance.

I have examined these charts with minuteness, but can find no trace of any effect on the quantities of precipitation or on the fluctuations of stream flow that may be regarded as resulting, beyond question, from cutting off our forests. If any such effect has actually been brought about, it is so slight as to escape careful observation. The indications point in an opposite direction.

It has been advanced, however, that some of our streams have deteriorated in navigable capacity, and that this has been in greater ratio than the diminution of rainfall in recent years; thus indicating, it is said, that forest protection is necessary. The arguments presented, when examined closely, often show evidences of "special pleading" and a neglect of pertinent facts. They are, in other words, too often open to the criticism that they have been brought forward for the purpose of "promoting a cause." The tables and diagrams necessary to support such efforts are usually based on wide general deductions,

presumably drawn from the best precipitation records available, which, however, as is well known, are only kept at widely distant points and are frequently not characteristic or even representative. Their accuracy is also often questioned, as a strong wind may interfere with the exactness of the quantities shown by the rainfall gauge; and at best they are far from being entirely satisfactory. The conclusions deduced from these scanty records are therefore by no means convincing. Nothing, in fact, can be more illusory than the theories sometimes derived from them, and nothing is more dangerous than to jump to wide generalizations from a few inadequate data. * * * It will be seen from the charts that the highest water at Nashville was that of 1882, and that high waters for the past ten years have been noticeably less in height and less in frequency than at the commencement of our records. At Chattanooga the highest water was in 1867.

During the past few years, which have been rather "dry" years, the high waters in both the Cumberland and Tennessee have been less in height and duration than usual, which might reasonably be expected, owing to the smaller average quantities of precipitation; but it is particularly worthy of note that the low waters were not extreme, but as a rule were higher than usual, giving better depths for navigation. Although this may be in the nature of a surprise to some, it is plainly seen on the charts and is well established by reliable records. These facts can certainly be of no use in proving that our floods are higher and our low waters lower than before the forests were attacked. If they prove anything, it should be the reverse. It may be stated broadly, and I think with positiveness, that the records of the Cumberland and Tennessee rivers do not indicate that the destruction of forests is having any noticeable effect, deleterious or otherwise, on stream flow or on precipitation.

In the case of the Tennessee, we find from the gauge records that the average number of days the river was above 25 feet—

I do not know whether the committee want all of these figures; perhaps not. I can read them if desired.

The CHAIRMAN. Just partially, please.

Captain JOHNSTON (reading).

These averages indicate that for thirty years the duration of stages over 25 feet has been steadily declining. Stages of over 35 feet occurred but four times during the ten years from 1899 to 1908, five times in 1889-1898, and six times in 1879-1888. This shows that the frequency of high water is also growing less. An inspection of the chart will show that the heights are also less of late years, the highest flood having occurred in 1867 and the next highest in 1876. Moreover, we find that from 1899-1908 the river was below 1 foot only twice (1903, 1904), with an average of 10.3 days per year; from 1889-1898 only three times (1894, 1895, 1897), with an average of 7.7 days per year; whereas in 1879-1888 it was less than 1 foot five times with an average of 20.4 days per year. These records demonstrate that low waters have neither been so frequent nor so low of late years. It is therefore not true that the high waters in the Tennessee River are growing higher and the low waters lower, nor is the frequency or duration of these stages increasing as claimed.

The frequency and height of high waters in both of these rivers, as well as the duration of low waters, follow the rule of precipitation closely enough during the periods under observation to force the conclusion that here is the principal cause of the variations in these streams, and that the introduction of forestry as an important factor in either direction is forced and illogical. Whenever extreme precipitation occurs the river immediately records its effect, and during seasons of light precipitation the corresponding result is to be expected. Temperatures play an important part as affecting evaporation and absorption by the watershed; rainfall of equal intensity at different times of the year not having the same effect on the river stages. The distribution of the rainfall, both in point of time and locality, also affects the river heights, but the extent of this feature is, of course, not apparent from the data available, owing to the small number of rainfall stations where records have been kept.

It is worthy of note, too, that there has been no falling off in late years in the navigable capacity of the Cumberland River or the Tennessee, due to silting up of channels or any other cause. On the contrary, conditions affecting navigation are distinctly better now than twenty to thirty years ago, even in the portions unregulated. This is largely due, in all probability, to the removal of

snags and surface obstructions and the clearing away of overhanging trees. The period of time covered by these observations and the extent of the decrease in forested areas seem ample to show any decided or important change that might be taking place. The records and facts, however, appear to indicate clearly that there is no such intimate or important relation between river stages and forest cover as have been so enthusiastically maintained by the advocates of this theory, nor has the soil wash of the upper regions been raising the beds. No one, I think, desires to detract from the value of forestry as forestry, but it has often been said that the random statements made as to the usefulness of forestry in improving the depths in our navigable streams have unfortunately been much overdrawn, and that the extravagant claims now being urged in this direction have not helped the development of this useful industry. Frequent repetitions may in time create a popular belief in almost anything, but can never alter facts.

The stages which interrupt navigation the most are the extremes of high and low. At either of these, forest cover appears to be of little assistance, or perhaps even a detriment rather than a help. Forest cover of course delays somewhat the run-off of rains, and thus assists materially in promoting absorption by the ground. But these effects are only limited and of small value; the sponge is soon saturated by heavy rains, and floods then occur without hindrance. In dry weather the forests hold back the small rains, permitting them to evaporate more readily, and thus rob the streams of whatever help they might otherwise have obtained.

Of course those are Major Harts's private views.

(By direction of the committee, the whole of the foregoing paper is included in the record; and the same will be found printed at the end of this hearing.)

The CHAIRMAN. Have you any further reports there that you wish to put in?

Captain JOHNSTON. Just this one, Mr. Chairman. I do not know whether you care to go into this or not. This is a paper by Lieut. Col. H. C. Newcomer, Corps of Engineers, in charge of improvement work at Pittsburg. This paper was submitted by Lieutenant Colonel Newcomer in July of 1908, with a request for the opinion of the Chief of Engineers as to whether or not there was any objection to its being published. It was designed by the author to bring forth some facts in contradiction of some of the articles appearing in various magazines, etc. But as it appeared to be controversial in nature, and would perhaps not lead to any good results between departments of the Government or otherwise, its publication was not deemed advisable, and the paper has been in our office for the last year and a half. I will read part of it because of the questions that have been asked about this International Congress of Navigation at Milan in 1905. Major Newcomer said:

It is interesting, therefore, to consider the papers that were presented on this subject at the Tenth International Congress of Navigation held at Milan in 1905. The second of the four questions appointed for discussion by this congress was the "Influence of the destruction of forests and drainage of swamps on the regimen and discharge of rivers." Summaries of the papers relating to this question are given in Volume I, *Annales des ponts et chaussées*, 1906. One of the writers was from France, one from Germany, one from Russia, one from Italy, and three from Austria. While there was a manifest tendency to emphasize the benefits to be derived from forests, yet the opinion of the majority was clearly to the effect that forests have no appreciable influence toward lessening floods of great magnitude. Mr. Keller, for instance, holds that deforestation gives only local effects; that variations in conditions of flow of streams correspond to other climatic phenomena; that years rich in water alternate with poor ones through an apparent period of about thirty-five years; that the influence of deforestation and drainage is insignificant in comparison with weather changes.

Mr. Lauda considers that the amount of rainfall held back is in a certain measure greater in a wooded basin except for rains passing certain limits (those in fact which produce great floods) when the amount retained is even less in a wooded basin since the run-off is then augmented by a portion of the water previously held back.

Mr. Wolfeschultz holds that in many countries covered by great forests the dangerous high waters and abnormal low waters are as frequent as in regions where the forests have disappeared; that the difference between the run-off in cleared and wooded lands relates only to normal conditions of rainfall and it loses its value more and more in cases of persistent rains and becomes even negligible for periods of excessive rain which cause the great disasters due to floods; that one can not, therefore, attribute to forests a sensible influence on the formation of floods of important streams.

Mr. Ponti contends that the forest retains an appreciable quantity of water in sudden rains of small importance, but its action is insignificant in the more important and prolonged rains; that when one examines the behavior of a river for a long period the anomalies disappear which one is prone to attribute to some special causes and one sees that it is the variations in rainfall which really have the principal influence on great rivers and that other conditions, including forestation, have an insignificant action.

The CHAIRMAN. Does Colonel Newcomer express his own opinion in that paper, as based on his examination of the river at Pittsburg?

Captain JOHNSTON. I think he does. I might say that I was stationed at Pittsburg myself for three years. Any records at Pittsburg are entirely unreliable, because of the fact that the channel has been abnormally contracted, due to filling by the steel plants and other industrial enterprises; so that a certain gauge-height to-day might indicate a much less flow of water than the same gauge-height some years ago. Colonel Newcomer, however, does give certain data for the Ohio River at certain points.

The CHAIRMAN. I want to ask you just one more question. Have you about concluded your statement, Captain Johnston?

Captain JOHNSTON. Yes, sir. I hope it was not considered as a statement, because I only consider it as reading this documentary evidence or what you may call documentary evidence.

The CHAIRMAN. We understand that. I have just one question to ask in connection with the statement you made at the beginning, to the effect that certain officers of the Engineer Corps had been asked by the Forest Service for their opinion on this question. Were any of the replies made by these engineers sent to the Forest Service, to your knowledge?

Captain JOHNSTON. I think no special reports on the subject were sent to the Forest Service.

The CHAIRMAN. May I inquire why you qualify your answer in that way? Were any other reports, that could not be regarded as special reports, sent there?

Captain JOHNSTON. I had in mind particularly a report or letter sent from the hospital at Fort Bayard, N. Mex., by Lieutenant Leeds of the Corps of Engineers. He was sick with consumption at the hospital at the time the Forest Service addressed letters to all the officers of the Corps; and I think I remember a letter he sent them, in which he said that undoubtedly there was very great connection between forests and streams. I think, perhaps, some individual officers also sent letters on the subject to the Forest Service, although I think they are very few in number. But I think, that in no case was any letter sent to the Forest Service which was the result of an investigation and study of the proposition.

The CHAIRMAN. At any rate, none of these letters were published by the Forest Service, to your knowledge?

Captain JOHNSTON. No, sir.

The CHAIRMAN. Are there any further questions? If not, we are very much obliged to you, Captain Johnston.

(The committee thereupon adjourned until to-morrow, Thursday, March 3, 1910.)

(The letter of March 3, 1909, from Maj. William H. Harts, Corps of Engineers, U. S. Army, to the Chief of Engineers, U. S. Army, read in part by Captain Johnston, and directed to be incorporated in full in the record, is as follows:)

WAR DEPARTMENT,
ENGINEER OFFICE, UNITED STATES ARMY,
Custom-House, Nashville, Tenn., March 3, 1909.

The CHIEF OF ENGINEERS, U. S. ARMY,
Washington, D. C.

GENERAL: I have the honor to submit the following reply to your letter of November 5, 1908 (E. D. 68551), referring to the general subject of the influence of forests upon stream flow.

1. The main rivers in my district are the Cumberland and the Tennessee. These streams are somewhat similar in their upper regions. They take their source in similar country, the southern Appalachian region, and follow the same general direction of flow. Their drainage basins adjoin; that of the Tennessee lying to the south.

The tributaries of the Tennessee extend farther eastward and over a much wider range of latitude; the area drained by them being approximately double that of the Cumberland basin. The hydrographic records of these two streams, as far as they have been kept, seem to point out plainly the fallacy of the claim that deforestation is noticeably injuring the navigable capacity of our rivers.

2. The Cumberland with its tributaries has its sources in eastern Kentucky and Tennessee at elevations of about 2,000 feet above sea level. The drainage area above Burnside, Ky., is 3,730 square miles and above Nashville 11,600 square miles. As is to be expected, the slope of the river and the general grade of the country through which it flows are much steeper in the upper than in the lower portions, the average fall of the river surface from the mouth of Poor Fork to the mouth of Rockcastle River being 3.04 feet per mile; from the mouth of Rockcastle River to Burnside 2.57 feet; from Burnside to Nashville 0.67 foot; and from Nashville to the mouth 0.403 foot.

3. The Tennessee is formed near Knoxville by the confluence of the Holston and French Broad rivers. These tributaries rise in western Virginia and North Carolina at elevations of 2,500 to 3,000 feet above sea level. The drainage area above Knoxville is 10,295 square miles, of which 6,438 square miles belong to the French Broad and 3,857 to the Holston. The drainage area above Chattanooga is 21,418 square miles. The average fall of the Holston from Kingsport to the main river, a distance of 142 miles, is 2.54 feet per mile. The French Broad from Brevard, N. C., to Leadvale, Tenn., descends at an average rate of 8 feet per mile, while from Leadvale to the mouth its average fall per mile is 2.27 feet. From the confluence of these two rivers to Chattanooga (188 miles) the fall in the Tennessee averages 0.95 foot per mile.

4. The country in the vicinity of the upper portions of these river systems is generally wooded, the areas of cleared and cultivated land increasing as we pass down the streams. The river bottoms are often highly cultivated, but the soil of the uplands is generally poor, and owing to the mountainous character of the country surrounding the headwaters these regions are of far less value for agricultural purposes than the valley lands lower down. The areas of cultivated land are increasing, however, and vast areas of timber land have been cut over within the past fifteen years, so that deforestation in these areas is referred to by the Forestry Bureau as already dangerous in extent and as increasing with alarming rapidity. They maintain that it is now affecting adversely the navigable condition of our streams, and that forest preservation is necessary if we expect to protect their navigability from injury.

5. Exact information as to the areas under forest cover at the present time is very meager, and many efforts to obtain even a close approximation were fruitless, so that the estimates of forested areas given herein are largely based upon conjectures. From the best information available, I should say that the proportion of the drainage basins of these streams under forest cover would now be in the neighborhood of 60 per cent. The increase in cleared areas within the past twenty-five years, including tracts deforested for the sake of lumber, may perhaps amount to as much as 20 per cent. From the census report for 1900 it appears that in Tennessee the increase in the areas of improved farm lands between 1680 and 1900 amounted to 1,749,394 acres; in North Carolina to 1,845,915 acres, and in Virginia to 1,584,692 acres. The changes within twenty years in the lower lands of these States have not been nearly so extensive as in the higher portions, and it may be assumed without much question that the greater part of this increase was at the expense of the forested areas about the headwaters of the streams under examination. The total amount of clearing in the southern Appalachian region is given by the Forestry Bureau as 24 per cent (Report of the Secretary of Agriculture on the Forests, Rivers, and Mountains of the Southern Appalachian Region, 1902, p. 26), leaving an average of 76 per cent still under forest cover.

6. The most active lumber operations in the upper drainage basins of these rivers have been carried on within the last twenty years, although lumber began to be cut in large quantities as far back as the early seventies. Lumbermen state that in 1906 far more timber was cut in these drainage areas than in any other year on record. Before the seventies the forested areas in the mountain regions were practically the same as before the advent of the white settlers, deforestation having been slight up to that time; so that a comparison of the river conditions from about 1875 to the present day should show what changes, if any, have resulted from the reported wholesale destruction of our forests. In order to facilitate such comparisons I have had prepared a chart showing the rainfall records and river stages at three places on the Cumberland River, by months, and a similar one for the Tennessee River. These are transmitted herewith. The maximum and minimum gauge readings at each locality for each month have been plotted and joined by a line, to ascertain whether any noticeable change has taken place in the height or frequency of floods during the period under observation, or whether any marked difference in low waters or their frequency could be detected. There are also sent herewith charts showing the rainfall by years as far back as the records are available, to discover, if possible, whether any change is taking place in the quantity of precipitation, as it has been claimed by some that forests induce rainfall and that deforestation diminishes it.

7. I have examined these charts with minuteness, but can find no trace of any effect on the quantities of precipitation or on the fluctuations of stream flow that may be regarded as resulting beyond question from cutting off our forests. If any such effect has actually been brought about, it is so slight as to escape careful observation. The indications point in an opposite direction.

8. Efforts, thus far futile, have been made for years by scientific men to correlate the gauge heights of streams with local precipitation records by a mathematical ratio, diagram, or curve, or in some other definite way, so that more or less exact predictions could be made therefrom. This has also been attempted by me from the data prepared for these rivers, but without any results that can be considered valuable. An examination of the tables will show some of the difficulties encountered. The experience of observers in the Weather Bureau also indicates that any such definite correlation would in all probability be unreliable and misleading. So many conditions enter into such a relationship that nothing satisfactory has yet been obtained in this direction.

9. It has been advanced, however, that some of our streams have deteriorated in navigable capacity, and that this has been in greater ratio than the diminution of rainfall in recent years, thus indicating, it is said, that forest protection is necessary. The arguments presented, when examined closely, often show evidences of "special pleading" and a neglect of pertinent facts. They are, in other words, too often open to the criticism that they have been brought forward for the purpose of "promoting a cause." The tables and diagrams necessary to support such efforts are usually based on wide general deductions, presumably drawn from the best precipitation records available, which, however, as is well known, are only kept at widely distant points and are frequently not characteristic or even representative. Their accuracy is also often questioned, as a strong wind may interfere with the exactness of the quantities shown by

the rainfall gauge, and at best they are far from being entirely satisfactory. The conclusions deduced from these scanty records are therefore by no means convincing. Nothing, in fact, can be more illusory than the theories sometimes derived from them, and nothing is more dangerous than to jump to wide generalizations from a few inadequate data. Some meteorologists think that the general variations in precipitation and other weather conditions occur in cycles, but the least period I have seen seriously suggested by them is about thirty-five years. Our records do not go far enough back to prove anything of value in this connection, and all efforts to establish run-off coefficients, curves, or diagrams, and formulas which might indicate the river stages that would result under given conditions of rainfall have thus far been practically useless; the lack of success in this direction arising mainly from our insufficient knowledge of all the conditions affecting the problem. Any positive or definite conclusions based on such uncertain data are necessarily very vulnerable.

10. It will be seen from the charts that the highest water at Nashville was that of 1882, and that high waters for the past ten years have been noticeably less in height and less in frequency than at the commencement of our records. At Chattanooga the highest water was in 1867. During the past few years, which have been rather "dry" years, the high waters in both the Cumberland and Tennessee have been less in height and duration than usual, which might reasonably be expected, owing to the smaller average quantities of precipitation; but it is particularly worthy of note that the low waters were not extreme, but as a rule were higher than usual, giving better depths for navigation. Although this may be in the nature of a surprise to some, it is plainly seen on the charts and is well established by reliable records. These facts can certainly be of no use in proving that our floods are higher and our low waters lower than before the forests were attacked. If they prove anything it should be the reverse. It may be stated broadly, and I think with positiveness, that the records of the Cumberland and Tennessee rivers do not indicate that the destruction of forests is having any noticeable effect, deleterious or otherwise, on stream flow or on precipitation.

11. The number of days and the number of times the river at Nashville has been above 35 feet or below 5 feet are shown in the accompanying table. In the last decade, 1899-1908, the stage has exceeded 35 feet but 8 times and for 78 days in all; for the previous decade it exceeded this height 9 times and for 123 days; and from 1879 to 1888, 11 times and 178 days. This plainly indicates a steady decrease of high-water stages in both duration and frequency since 1879. We also find that the river stage was less than 5 feet for 966 days in the years 1899-1904, an average of 161 days per year (in 1905-1908 low water was held up by Dam No. 1); in 1889-1898, 1,538 days, an average of 153.8 days per year; in 1879-1888, 1,418 days, an average of 141.8 days per year, and in 1874-1878, 576 days, an average of 115.2 days per year.

By examining these averages we see that since 1878 the number of days the river was below 5 feet, or the duration of moderately low stages, has been increasing; but, on the other hand, in the years 1889-1904, the river reached a stage of less than 1 foot 3 times and for an average duration of 20.8 days per year; in the preceding decade the river was below 1 foot 7 times, with an average of 32 days per year; and in 1879-1888, 9 times, with an average of 32.5 days per year. It thus appears that extreme low-water stages have not been growing either in duration or frequency during the last thirty years. Any statements that low-water conditions are becoming worse on the Cumberland in more rapid ratio than the decrease in the rate of precipitation are untrue, for they are growing better.

12. The reason for some of this variation seems clear when we examine the record of rainfall. In the last decade the yearly average was 46.089 inches; in the next preceding, 50.969 inches; in the next, 56.328 inches; while from 1871 to 1878 it was 49.47 inches. This rule of change is thus seen to be substantially the same as for the duration of high-water stages, and may account in part for the low-water variations.

13. In the case of the Tennessee we find from the gauge records that the average number of days the river was above 25 feet was 7.0 from 1899 to 1908; from 1889 to 1898 the yearly average was 9.1; from 1879 to 1888 it was 11.6; and for the four years before 1879 it was 9.3. These averages indicate that for thirty years the duration of stages over 25 feet has been steadily declining. Stages of over 35 feet occurred but four times during the ten years from 1899 to 1908, five times in 1889-1898, and 6 times in 1879-1888. This shows that the frequency of high water is also growing less. An inspection of the chart will

show that the heights are also less of late years, the highest flood having occurred in 1867 and the next highest in 1876. Moreover, we find that from 1899-1908 the river was below 1 foot only twice (1903, 1904), with an average of 10.3 days per year; from 1889-1898 only three times (1894, 1895, 1897), with an average of 7.7 days per year; whereas in 1879-1888 it was less than 1 foot five times, with an average of 20.4 days per year. These records demonstrate that low waters have neither been so frequent nor so low of late years. It is therefore not true that the high waters in the Tennessee River are growing higher and the low waters lower, nor is the frequency or duration of these stages increasing as claimed.

14. The frequency and height of high waters in both of these rivers, as well as the duration of low waters, follow the rule of precipitation closely enough during the periods under observation to force the conclusion that here is the principal cause of the variations in these streams, and that the introduction of forestry as an important factor in either direction is forced and illogical. Whenever extreme precipitation occurs the river immediately records its effect, and during seasons of light precipitation the corresponding result is to be expected. Temperatures play an important part as affecting evaporation and absorption by the watershed, rainfall of equal intensity at different times of the year not having the same effect on the river stages. The distribution of the rainfall, both in point of time and locality, also affects the river heights; but the extent of this feature is of course not apparent from the data available, owing to the small number of rainfall stations where records have been kept.

15. It is worthy of note, too, that there has been no falling off in late years in the navigable capacity of the Cumberland River or the Tennessee due to silting up of channels or any other cause. On the contrary, conditions affecting navigation are distinctly better now than twenty to thirty years ago, even in the portions unregulated. This is largely due, in all probability, to the removal of snags and surface obstructions and the clearing away of overhanging trees. The period of time covered by these observations and the extent of the decrease in forested areas seen ample to show any decided or important change that might be taking place. The records and facts, however, appear to indicate clearly that there is no such intimate or important relation between river stages and forest cover as have been so enthusiastically maintained by the advocates of this theory, nor has the soil wash of the upper regions been raising the beds. No one, I think, desires to detract from the value of forestry as forestry, but it has often been said that the random statements made as to the usefulness of forestry in improving the depths in our navigable streams have unfortunately been much overdrawn, and that the extravagant claims now being urged in this direction have not helped the development of this useful industry. Frequent repetitions may in time create a popular belief in almost anything, but can never alter facts.

16. The stages which interrupt navigation the most are the extremes of high and low. At either of these forest cover appears to be of little assistance, or perhaps even a detriment rather than a help. Forest cover, of course, delays somewhat the run-off of rains, and thus assists materially in promoting absorption by the ground. But these effects are only limited and of small value; the sponge is soon saturated by heavy rains, and floods then occur without hindrance. In dry weather the forests hold back the small rains, permitting them to evaporate more readily, and thus rob the streams of whatever help they might otherwise have obtained. As was recently pointed out by Col. H. M. Chittenden, Corps of Engineers (Proc. Am. Soc. C. E., Sept., 1908), it is fortunate that this important industry is not dependent on its relationship to navigable rivers for its usefulness. In their efforts to obtain some constitutional basis for their extensive plans, it is feared that the friends of this valuable department of the Government have imperiled their projects by seeking to furnish reasons for them which are not supported by the facts.

Very respectfully,

WM. W. HARTS,
Major, Corps of Engineers.

INCREASE OF APPROPRIATION TO AGRICULTURAL COLLEGES.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON AGRICULTURE,
Thursday, February 24, 1910.

The committee met at 11.45 a. m., Hon. Charles F. Scott in the chair.

There were present, in addition to the members of the committee, the following gentlemen interested in the pending bill: Dr. W. O. Thompson, president the Ohio State University; Dr. W. E. Stone, president Perdue University; Dr. J. L. Snyder, president Michigan Agricultural College; Dr. W. H. Jordan, director of the Geneva Experiment Station, New York; Dr. C. F. Curtis, dean of agriculture, Ames, Iowa; John Hamilton, farmers' institute specialist, United States Department of Agriculture.

The CHAIRMAN. The committee has met this morning pursuant to the order made yesterday to consider H. R. 15422.

[H. R. 15422, Sixty-first Congress, second session.]

A BILL For increase of appropriation to agricultural colleges for extension work.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there shall be, and hereby is, annually appropriated, out of any money in the Treasury not otherwise appropriated, to be paid as hereinafter provided to each State and Territory, for the more complete endowment and maintenance of agricultural colleges now established or which may hereafter be established in accordance with the act of Congress approved July second, eighteen hundred and sixty-two, and the acts of Congress approved August thirtieth, eighteen hundred and ninety, and March fourth, nineteen hundred and seven, the sum of ten thousand dollars, in addition to the sum named in the said acts for the fiscal year ending June thirtieth, nineteen hundred and ten, and a like amount annually thereafter, to be applied by these colleges in giving instruction and demonstrations in agriculture, home economics, and similar lines of activity to persons not resident in these colleges in the several communities, as may be provided by the States accepting the provisions of this act, and in conveying and imparting to such persons information with reference to the improvement of rural life.

SEC. 2. That at any time after two years from the date on which any State or Territory has accepted the appropriation made by this act and has actually organized a separate and distinct department of extension work in connection with and as a part of its agricultural college there shall be available from the National Treasury, in addition to the ten thousand dollars herein appropriated for the purposes named in this act, an amount of money for each State and Territory equal to the amount appropriated by the State or Territory to its agricultural colleges for the current year for extension work: *Provided*, That the additional appropriation to any State or Territory shall not exceed an amount equal to one cent per capita of the total population of that State or Territory as shown by the last United States census.

SEC. 3. That all printed matter issued from the agricultural colleges for the furtherance of extension work, as provided in this act, shall be transmitted in the mails of the United States and dependencies free of charge for postage, under such regulations as the Postmaster-General may from time to time prescribe.

SEC. 4. That the sums hereby appropriated to the States and Territories for extension work shall be annually paid in equal quarterly payments on the first day of Janu-

ary, April, July, and October of each year by the Secretary of the Treasury, upon the warrant of the Secretary of Agriculture, out of the Treasury of the United States, to the treasurer or other officer duly appointed by the governing boards of said colleges to receive the same, and such officer shall be required to report to the Secretary of Agriculture, on or before the first day of September of each year, a detailed statement of the amount so received during the previous fiscal year and of its disbursement on schedules prescribed by the Secretary of Agriculture. The grants of money authorized by this act are made subject to the legislative assent of the several States and Territories to the purpose of said grants: *Provided*, That payment of such installments of the appropriation herein made as shall become due to any State or Territory before the adjournment of the regular session of the legislature meeting next after the passage of this act shall be made upon assent of the governor thereof, duly certified to the Secretary of the Treasury.

SEC. 5. That no money shall be paid out under this act to any State or Territory for the support and maintenance of a college where a distinction of race or color is made in the admission of students, but the establishment and maintenance of such college separately for white and colored students shall be held to be a compliance with the provisions of this act if the funds received in such State or Territory be equitably divided as hereinafter set forth: *Provided*, That in any State in which there has been one college established in pursuance of the act of July second, eighteen hundred and sixty-two, and also in which an educational institution of like character has been established, or may be hereafter established, and is now aided by such State from its own revenue, for the education of colored students in agriculture and the mechanic arts, however named or styled, or whether or not it has received money heretofore under the act to which this act is an amendment, the legislature of such State may propose and report to the Secretary of Agriculture a just and equitable division of the fund to be received under this act, between one college for white students and one institution for colored students, established as aforesaid, which shall be divided into two parts and paid accordingly, and thereupon such institution for colored students shall be entitled to the benefits of this act and subject to its provisions, as much as it would have been if it had been included under the act of eighteen hundred and sixty-two, and the fulfillment of the foregoing provisions shall be taken as a compliance with the provisions with reference to separate colleges for white and colored students.

SEC. 6. That if any portion of the moneys received by the designated officer of any State or Territory for the further and more complete endowment, support, and maintenance of agricultural colleges as provided in this act shall by any action or contingency be diminished or lost or be misapplied, it shall be replaced by said State or Territory to which it belongs, and until so replaced no subsequent appropriation shall be apportioned or paid to such State or Territory, and no portion of said moneys exceeding five per centum of each annual appropriation shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings, or to the purchase or rental of land. It shall be the duty of each of said colleges annually, on or before the first day of January, to make to the governor of the State or Territory in which it is located a full and detailed report of its operations in the direction of extension work as defined in this act, including a detailed statement of receipts and expenditures from all sources for this purpose, a copy of which report shall be sent by each of said colleges to the Secretary of Agriculture and to the Secretary of the Treasury of the United States.

SEC. 7. That on or before the first day of July in each year, after the passage of this act, the Secretary of Agriculture shall ascertain and certify to the Secretary of the Treasury as to each State and Territory whether it is entitled to receive its share of the annual appropriation for colleges or of institutions for colored students under this act, and the amount which thereupon each is entitled, respectively, to receive. If the Secretary of Agriculture shall withhold a certificate from any State or Territory of its appropriation, the facts and reasons therefor shall be reported to the President, and the amount involved shall be kept separate in the Treasury until the close of the next Congress, in order that the State or Territory may, if it should so desire, appeal to Congress from the determination of the Secretary of Agriculture. If the next Congress shall not direct such sum to be paid, it shall be covered into the Treasury. And the Secretary of Agriculture is hereby charged with the proper administration of this law.

SEC. 8. That the Secretary of Agriculture shall make annual report to Congress of the receipts and expenditures and work of the institutions in all of the States and Territories receiving the benefits of this act, and also whether the appropriation of any State or Territory has been withheld, and, if so, the reason therefor.

SEC. 9. That Congress may at any time annul, suspend, or repeal any or all of the provisions of this act.

The consideration of this bill is taken up at this time at the request of the executive committee of the National Association of State Agricultural Colleges, and that committee is present this morning. The chairman of it, I believe, is Doctor Thompson, of Ohio, and we shall be glad to have him make such statement as he desires or to present any members of the committee whom he would prefer to have first heard.

Mr. THOMPSON. Owing to the fact that President Snyder desires to leave early I request that he may be first heard.

I introduce President J. L. Snyder, of the Agricultural College of the State of Michigan.

STATEMENT OF DR. J. L. SNYDER, PRESIDENT OF THE MICHIGAN AGRICULTURAL COLLEGE.

Doctor SNYDER. With no attempt at being strictly accurate, it may be stated that for a century or more the population of this country has doubled in every twenty-five years to thirty years. We do not know what influences may affect this ratio of increase in the future, but in the past the rate of increase has been quite uniform, and we can see no reason at present why this ratio may not be kept up for many years. If we are to increase as in the past, our population will not be far from two hundred million by the middle of this century—forty years hence.

The increase in the production of the staple articles of food has kept pace with the increase in population. The production of wheat, corn, and oats has doubled and, in some instances, a little more, each twenty-five years. The fact worthy of note is that the yield per acre has not doubled; it has not even held its own. The production of these staple crops doubled because the area of cultivated land was double. The increase in population, the increase in production, and the increase in the area of cultivated land have moved along at practically the same rate. Population will increase in the future; production must increase at the same rate, if we maintain present standards of living. The area of cultivated land can not increase, because we do not have it. Population and production are unfixed quantities, but land is limited and we can not extend our boundaries. We have been able to increase production rapidly in the past, because we have brought under the plow ten million acres annually for the last fifty years.

But our public domain is practically exhausted. We do not have enough left fit for cultivation to take care of the increase in population for more than three or four years, at best. The arid land which may be redeemed by irrigation will not take care of the increase in population for more than two years.

In my opinion, this country is now facing the greatest economic problem with which it has ever had to contend, and it is this: How shall we stimulate the production of the common articles of food so that they may keep pace with the increase in population?

How the people shall be fed has never been a serious problem with us before; and if we are willing to lower our standards of living for a large portion of our people it might not yet be considered serious. But to maintain present standards for the next quarter or half a cen-

ture, to say nothing of the distant future, is a great and serious problem.

The time has passed, never to return, when we can bring under the plow 10,000,000 acres of fertile prairie annually. At the rate farms are being abandoned in the Eastern and some of the Southern States it is doubtful if the area of cultivated land can hold its own in this country in the years to come.

This all leads up to the statement, which must be apparent to everybody, that the increase in production in the future must come mainly from the land now under cultivation. New territory and importations—if we cared to resort to such means—can play but an insignificant part in providing food for the increase in population which is sure to take place in this country. If the coming generations are to be fed as this generation has been fed, the land now under the plow must practically double its production within the next quarter of a century. While this can be done, it will not be an easy task. We have steadily been going the other way: The annual yield per acre of our staple crops has been growing less. The low prices of grain and live stock, the scarcity of farm labor, and other rural conditions have compelled the farmer to follow wasteful methods—to follow extensive rather than intensive farming. He has thus used up much of the virgin fertility of the soil, which has been manifest by a decrease in the annual yield per acre.

For the farmers, accustomed as they are to wasteful methods resulting in an annual decrease in yield, for them to turn around suddenly and effect a rapid increase in production would be nothing short of a marvel. Yet this is exactly what must happen if this country is to be saved from such an advance in the price of the better foodstuffs as to place them beyond the reach of a large percentage of our people.

The time when this may happen is not in the far future. It is already upon us. The day of cheap foods is past. We may investigate, haggle and scold, and lay the blame on this and that, but little will come of it. Any article is cheap only when the supply is abundant. The only way to decrease the price of foods is to increase the supply. When all of the old hens come out of their winter quarters and take up their wonted occupation again, notice how the high price of eggs will vanish.

The high price of corn made it apparent to the farmers of the corn belt that they could not produce pork at the usual prices, so they decided to send their brood sows to market and sell their corn. As a result we are several million swine short this season, and prices are nearly three times what they were ten years ago. This is but a specific instance. It remains true, however, that the general increase is due to the fact that production is not keeping pace with the demand, or, in other words, with the increase in population. Consumption is rapidly gaining on production.

Farming, while affording a free and independent life, has not been a profitable business. Yet our land was so fertile, and there was so much of it that could be had for the mere taking, that the food supply of our people has been, up to the present, a matter of little concern. The nation has given its attention to the encouragement of our other industries. The success of agriculture has been its undoing. We were anxious to create a home market in which to use our surplus crops. This led to the increase in tariffs, the subsidizing of railroads

with land grants, and other measures on the part of the Government which resulted in the building up of great industrial centers and the drawing away of people from the soil. Other industries have, by natural discrimination, been encouraged, while the great basic industry has been almost entirely neglected.

Whether or not this has been a mistake will depend largely on the future development of agriculture. Unless the increase in consumption can be met with a like increase in production, lower standards of living must be the result—lower standards, not for all, but for those of small incomes.

Up to the present our people have all lived on the same kinds of food. The laborer, however humble his position, has been able to provide for his family white bread, meat, milk, and the other staple articles of food. He has been the peer of any other man. Free schools have done much to develop the spirit of true democracy, but not more than our abundant food supply. If the supply drops far short, as it seems likely in the future, a large number of our people now rearing good families on small incomes must resort to the use of cheap foods. This will mean segregation along food lines. Two families can not hold the same position socially, the one living on meat and white bread while the other is compelled to live on black bread and potatoes. There is a social distinction there which can not be bridged. Those compelled to live on inferior foods will feel their humiliation; they will hold together socially and very likely politically. If this time should come, our democracy will be tried out as it never has been in the past.

The problem of future food supply is not sectional, and, above all, is not a rural problem. If the shortage comes, the farmer will have the advantage of high prices, and, being near the base of supply, can easily see that his own family is well fed. The pinch will come in our great centers of population. Who is raising the cry now about the high prices? Not the farmer. This problem affects all. It is national and must be dealt with as such.

If the Government, by tariffs and by other means, has stimulated other industries to the extent that the consumers have become proportionately too numerous for the producers of food, then action should be taken at once to remedy the difficulty. If for any reason a shortage of food seems to be imminent, every effort possible should be put forth by all agencies to ward off the impending danger.

Is it not apparent that we are facing a serious condition? Can anyone or does anyone acquainted with the facts doubt it? What can be done? Congress has made several grants for the benefit of agriculture which have borne rich results. The Morrill Act of 1862 gave us our agricultural colleges. These schools have turned out a large body of highly trained men. They are largely employed by the Department of Agriculture as teachers in our agricultural colleges and as experts in our agricultural experiment stations.

The act encouraging agricultural education was followed a quarter of a century later by an act known as the Hatch Act, establishing our great system of experiment stations in the various States. Both these acts were followed by later acts rendering further aid to those two most worthy objects—education and experimentation in agriculture. These two agencies have done much.

Our colleges have given training to a large body of men in the science and art of this great industry. Our experiment stations have developed a large fund of valuable knowledge—knowledge which, if it were possible to place it in practice at once, would revolutionize this great industry and immediately place it on the great highway to prosperity. This assertion could not truthfully have been made twenty-five years ago. At that time we had neither the men nor the information with which to carry on a great campaign of education. These institutions have made wonderful strides within the last few years. They have drawn to their halls not only those who can pursue long courses, but also those who can remain for only a few weeks, or even those who can remain for only one week. All who come are made welcome; but the great majority can not come. Their home cares will not permit it. They could attend meetings near their homes, but can not, on account of their live stock, which must be cared for, remain away overnight. They are anxious, as a class, to learn. They appeal to the colleges to send them help.

Most colleges are doing some extension work. Besides the farmers' institutes, which are held in every county, and, in some counties, quite a number, Michigan keeps three strong men in the field all the time. They are doing effective work, but there is scarcely a limit to what should be done. If there was no necessity for a greater production, this work might be carried on as the various States felt able to do so; but if production should be increased rapidly, as Mr. J. J. Hill and many other men who have investigated the problem so strongly urge, then Congress must come to the rescue. It is for you to decide.

In common parlance, the colleges "have the goods" and can "deliver" them if they are given the opportunity.

When the Morrill and Hatch acts were passed there was no certainty as to the results which they were hoped to create. The results which would follow the passage of the bill before you can safely be predicted, because some extension work has been done in nearly every State.

The model farm, the traveling school, the demonstration work in spraying, and also in many other lines, the organization of breeding and cow-testing associations—these and other forms of extension work have repeatedly been tried out and their value is known. There is no doubt as to the rich results which would come from a little aid to extension work. It is like the planting of grain after the soil has been prepared and the seed carefully selected. If consumption is fast overtaking production, which seems evident, nothing would stimulate production so rapidly as the assistance which the men on the farms would receive from college extension work.

The first step was to train the men; the second, to develop a fund of practical information; and the third is to place this information before the great body of men on the American farms.

Congress has assisted, and, I think all will admit, wisely, in taking the first two steps.

Will not present conditions and the future outlook justify it in extending aid to the third also?

The CHAIRMAN. I realize that you wish to take an early train, and I have no intention of detaining you more than a few minutes,

but I would like to inquire how much the appropriation of the State of Michigan is for extension work?

Doctor SNYDER. We do not set apart any specific amount, but we have a mill tax and we carry on the extension work out of the extension funds. We spend \$8,500 on our institute work. I am unable to state how much in addition to that is spent, but at least six or eight thousand dollars.

The CHAIRMAN. Your university is pretty amply supplied with funds as a result of your mill tax?

Doctor SNYDER. We don't think so. We get along the best we can, of course; but we can not launch out on any large system of extension work with our present funds.

The CHAIRMAN. I believe the State Agricultural College is part of the university?

Doctor SNYDER. No; it is separate; it is a separate school in Michigan.

Mr. McDERMOTT. That is located at Lansing, Mich.?

Doctor SNYDER. Yes.

Mr. McDERMOTT. One is at Lansing and the other is at Ann Arbor?

Doctor SNYDER. Yes, sir.

The CHAIRMAN. Does the support of the agricultural college, so far as it is derived at all from state funds, come out of this mill tax also?

Doctor SNYDER. Yes, sir; all that we get from the State we receive in the way of a mill tax.

The CHAIRMAN. How about the state university; does it derive its income also from this mill tax?

Doctor SNYDER. No; they have a separate mill tax.

The CHAIRMAN. Then you have a tax of 1 mill on every hundred dollars on all the state property for the support of the agricultural college alone?

Doctor SNYDER. Not 1 mill, but one-tenth of a mill is what the agricultural college receives.

Mr. McLAUGHLIN. And the university gets a quarter of a mill?

Doctor SNYDER. I beg your pardon; three-eighths of a mill now.

Mr. McLAUGHLIN. The last legislature must have changed it.

Doctor SNYDER. Yes; it is now three-eighths of a mill, as I understand it.

The CHAIRMAN. Can you tell us, broadly speaking, how the amount of money received from the State of Michigan for the agricultural college compares with the appropriations from the Federal Treasury?

Mr. McLAUGHLIN. One-tenth of a mill tax would yield you about \$180,000?

Doctor SNYDER. One hundred and seventy-five thousand dollars.

Mr. McLAUGHLIN. You get about \$170,000 from the State, as against the Federal Government's appropriation?

Doctor SNYDER. We have to construct our buildings and run the whole institution from that. We get no special appropriation for building or farmers' institutes, or printing bulletins, or anything of that sort. It all comes out of that. We must maintain our two subexperiment stations out of that as well.

The CHAIRMAN. Is the extension work which you have been doing meeting with popular approval?

Doctor SNYDER. Yes, sir.

The CHAIRMAN. It is popular work, is it?

Doctor SNYDER. Yes; very popular. It is very productive work.

The CHAIRMAN. Have you ever gone to the legislature and asked them for a special appropriation to be devoted to this work alone?

Doctor SNYDER. No; not in that form.

The CHAIRMAN. Is there anything in the law or the constitution of the State of Michigan that restricts the appropriation for the state agricultural college to the amount derived through this three-eighths-of-a-mill tax; or if you needed more money, and the legislature saw fit to give it to you, could you receive it in the way of a direct appropriation?

Doctor SNYDER. I think we could; yes, sir.

The CHAIRMAN. Do you not think that if the extension work is popular and there is a great demand for it that it would be a pretty good idea to see whether your state legislature would not be willing to carry it on before coming to the National Congress asking for an appropriation?

Doctor SNYDER. Well, the State is carrying practically all it can carry. The taxes are very high, something over 2 per cent.

The CHAIRMAN. Ten thousand dollars more could not appear in the tax rate?

Doctor SNYDER. That is true; it would not be a great deal.

Mr. McLAUGHLIN. The amount the agricultural college receives now by virtue of the one-tenth-of-a-mill law is a large increase over what you ever received before?

Doctor SNYDER. Yes; and it was made with the understanding that several buildings which were very much needed would be erected out of that money, raised by that tax.

The CHAIRMAN. The point I am making, which of course you see, is that if the work is popular and if it is needed, and if there is a demand for it in the State, it would rather look as if you ought to ask your State for it before coming to the Federal Treasury.

Doctor SNYDER. Well, the Federal Government has inaugurated this agricultural education work and work of experiment stations. They are not really local problems. The food supply is a national problem.

The CHAIRMAN. I do not see what could be more a local problem than to try to teach the farmers of Brown County, State of Michigan, how to get more money out of their crops, and how to get more crops out of their soil.

Doctor SNYDER. That is all right. If it is a particular problem for the farmer, that would be all right; but so far as the farmers of Michigan are concerned, they would be better off to let the prices run high, to let the food supply run short, then they would get better prices for their products.

The CHAIRMAN. Then you think that in carrying out this extension work and teaching them to produce more food you are really working against their interests, do you?

Doctor SNYDER. The interests of all are concerned in this problem. It is a national problem; ultimately it would be better for everybody.

The CHAIRMAN. But for the present the increase in the yield of the crops of Michigan would be to the disadvantage of the men who grow them, and the only compensation they could have would be in the

altruistic one that they were contributing to the welfare of the country?

Doctor SNYDER. I would not put it in that way, exactly. You can not bring this down to a farmer problem. Giving this money would benefit the city people just as much as it would benefit the farmers.

Mr. LAMB. It would benefit them more, would it not, according to your argument?

Doctor SNYDER. Yes, I think it would. The farmer is near the base of supplies and he can take care of himself.

Mr. LAMB. I understand your argument.

Mr. McDERMOTT. How much do you get out of the Morrill Act a year?

Doctor SNYDER. About \$70,000.

Mr. McDERMOTT. From the Government?

Doctor SNYDER. Yes, the interest. Of course, the State holds the money and pays 7 per cent to the college, and that makes about \$70,000 a year.

The CHAIRMAN. Let me follow that for just a moment. Do you mean that you get \$70,000 from the Morrill Act?

Doctor SNYDER. We get that in interest on our land-grant funds; yes, sir.

The CHAIRMAN. Twenty-five thousand dollars, plus the interest from the land grant?

Doctor SNYDER. Yes, sir.

The CHAIRMAN. Then you get whatever is coming through the Adams Act and the Hatch Act for your experiment station?

Doctor SNYDER. Yes.

Mr. LEVER. The appropriation carried by this bill to be used exclusively for extension work?

Doctor SNYDER. Yes, sir; educational work away from the college.

Mr. LEVER. It carries \$10,000 appropriation?

Doctor SNYDER. Ten thousand dollars, yes.

Mr. LEVER. How many men would you hope to employ with that appropriation?

Doctor SNYDER. I could hardly answer that. It would not carry men the entire year. A good part of this work we say would be done during the winter season, and we would employ our graduates who are now carrying on active operations on the farm.

Mr. LEVER. About what would you consider a reasonable salary for those men, per month?

Doctor SNYDER. From \$50 to \$80 a month, and expenses.

Mr. LAMB. And this bill contemplates giving you more than \$10,000 a year when the States comply fully with the terms of the act?

Doctor SNYDER. Yes, sir.

The CHAIRMAN. One further question with reference to the revenue you derive. Can you state the amount of the interest you receive annually on your original land grant?

Doctor SNYDER. About \$70,000

The CHAIRMAN. That is the interest?

Doctor SNYDER. Yes.

The CHAIRMAN. I presume the State pays it because it could get that much?

Mr. McLAUGHLIN. The law provided for 7 per cent at the time it was passed, and the courts have held that the State is obliged to pay 7 per cent continually.

Mr. LAMB. Are we to understand that you receive \$70,000 upon the amount that 7 per cent gives?

Doctor SNYDER. Yes, sir.

The CHAIRMAN. To put it in another way, what is the amount of your permanent endowment?

Doctor SNYDER. I can not give that exactly, but it is pretty near a million dollars.

Mr. McDERMOTT. A million dollars a year?

Doctor SNYDER. No; the permanent endowment, the money we have received from sale of our lands.

Mr. LEVER. Do you justify this appropriation on the ground that it is a national rather than a local problem?

Doctor SNYDER. Yes, sir.

Mr. LEVER. And would you justify it on the further ground that the entire agricultural system of this country is a federal rather than a local or state undertaking?

Doctor SNYDER. Well, I have not thought of it in that way.

Mr. LEVER. Is it not a fact that the agricultural system of this country is federal rather than a state matter?

Doctor SNYDER. Yes. Of course they cooperate; they work together; but it was initiated by the National Government.

Mr. LEVER. And is largely supported by the National Government.

Doctor SNYDER. Yes.

Mr. McLAUGHLIN. It is true, is it not, that under the law you are not permitted to expend any part of your present revenue in extension work; that this money is needed for extension work because you have no authority to use any money you now have or receive from the Federal Government for extension work?

Doctor SNYDER. I am not certain as to that.

The CHAIRMAN. How about the interest you receive on your permanent fund; is there any limitation upon that?

Doctor THOMPSON. That is entirely subject to the State's action—the action of the legislatures of the several States. If you will excuse Mr. Snyder from answering that, we will answer some of those questions later.

The CHAIRMAN. I wanted to bring out the fact, if it be a fact, that the federal appropriations for the State of Michigan, when the Nelson Act and the Adams Act mature, assuming that the interest on the endowment is \$70,000, will be about \$150,000.

Doctor SNYDER. Not quite that much, I think.

The CHAIRMAN. Well, there is \$50,000 from the Morrill Act, with the Nelson amendment; \$30,000 from the Hatch Act, with the Adams amendment; and \$70,000 as your interest, a part of which we understand is perhaps excessive, and yet is derived from the permanent fund originally given by the Government. That makes \$150,000.

Doctor SNYDER. Yes; that is correct.

The CHAIRMAN. We are very much obliged to you.

**STATEMENT OF DR. W. E. STONE, PRESIDENT OF PURDUE
UNIVERSITY, INDIANA.**

Doctor STONE. Mr. Chairman and gentlemen, I think probably I may occupy a moment of your time in speaking particularly of some of the concrete facts of this extension work as it is now being done to some extent, and I am going to speak particularly about what happens in our own State, because I am more familiar with that.

We find that the work now provided for in the school of agriculture and in the experiment station, good as it is, and being administered I believe to the fullest extent of its capacity, does not, nevertheless, reach the individual farmer in such a way as to stimulate, help, and develop his business. We find that there is, when we are able to reach these people, a very pronounced desire on their part to learn how to do these things better. We find that where it can be done it is usually possible to produce an effect upon the agriculture of our State by working through the individual farmers, which achieves this result. It increases production, and it develops a rational system of agriculture along the line of stopping wastes and conserving the soil, and all of those things which put that industry upon a sounder basis than we now know it.

How can that be done, and how is it being done? You must understand that this idea of extension work is a new thing. We have not talked about it or known much about it until the past two or three or four or five years. In some States steps have been taken in an experimental way. Some mistakes have been made, but nevertheless we are getting at something which we believe is extremely valuable and helpful.

The experiment stations publish their documents and send them out to the reading public; but thousands of farmers do not get those, or if they do get them they do not read them, or if they do read them do not put into practice the facts and the truths that are there laid down. But now, suppose we sent some men out to a little community where the fruit growers are interested—

The CHAIRMAN. Will you pardon me for a suggestion? Our time is limited this morning; otherwise we would be very glad indeed to have you proceed on the line on which you are starting, but that is a line of education with which this committee is very familiar, and I do not think there is one member of the committee who would not go just as far as you will go in advocating the advantages of this extension work and demonstration work and all that you are beginning to outline.

Doctor STONE. I am in error, then. I assumed—

The CHAIRMAN. The point, I think, upon which this committee desires to hear you is the reason why this bill should be passed; granting that the work is desirable, why should the Federal Government be called upon to do it rather than the States?

Doctor STONE. We are assuming, then, that the committee is well informed of what is being done, and of the possibilities of this movement?

The CHAIRMAN. I think that is a fair assumption. We spent several years in inquiring and learning about it.

Doctor STONE. I am glad you interrupted, and I will not spend any more time on that.

I believe that the results which can be achieved by this extension work will have a very great effect upon the agriculture of the country. I believe that that effect and those results are something more than of local interest, and I believe that that is a justification for asking the Federal Government to assist in this work.

I don't think it should be expected to assist for all time States or people who can not assist themselves or will not assist themselves.

The CHAIRMAN. Has the State of Indiana, or has your state agricultural college, made any appeal to your legislature for funds to carry on this work?

Doctor STONE. Yes, and the legislature has responded; and we are doing that work. We have at the present time probably twice as much demand made upon us—I don't know what it might be next year, but it is certainly a great deal more than we can meet or attend to with the funds we have. We are spending about \$20,000 a year now in this work—farmers' institutes and extension work.

The CHAIRMAN. And you are coming here because you think the Federal Treasury is better able to bear the expense than the treasury of the State of Indiana?

Doctor STONE. I am not coming here to speak for my State; I am coming here representing a national organization, including all the States, many of them being less fortunately situated than Indiana.

The CHAIRMAN. And as far as Indiana is concerned, she can take care of herself?

Doctor STONE. Well, we are taking care of ourselves as far as we can, but still we realize that this is a work which the whole country is interested in, and which we think should be encouraged by the National Government.

The CHAIRMAN. Is there anything further?

Doctor STONE. That is all I care to say on this line.

STATEMENT OF MR. W. O. THOMPSON, PRESIDENT OF THE OHIO STATE UNIVERSITY.

Doctor THOMPSON. Mr. Chairman and gentlemen of the committee, in the first place, as to this bill itself, it is, as you see, supplementary to the so-called Morrill Act and the second Morrill Act; and in its general administration it is the same kind of a bill. The distinctive and characteristic features of it are as follows:

First, an appropriation of \$10,000 a year for two years, which amounts altogether to about \$500,000 annually.

Second, that this work provided is to be done away from the colleges; is to be done in the homes and communities of the people. It is therefore called extension work. That is a kind of work that has never been authorized by the Federal Government, of course, and it is entirely or practically new among the States.

The origin of this movement is among the people themselves. This is not a movement of the colleges, but the colleges have been selected as an agency through which this movement could be furthered, because they are the best organization in the country for doing this kind of business. For example, in the State of Ohio, two years ago, after we had had farmers' institutes for practically a generation, the people took it into their heads that they would like to modify the form of the institute in Paulding County, and they asked the teachers

to come there during their vacation and operate the schools for a week. We went up there in that part of the State and did what we could in the way of teaching animal husbandry and the growing of crops and the rotation of crops. That is in the Great Black Swamp region, and the question of drainage there is fundamental. The people, without suggestion from us, asked the legislature to father a bill to have that sort of thing over the State. It resulted in an appropriation of \$20,000, to be spent through the agency of the College of Agriculture, as approved by the university trustees. We are operating this year 36 distinct schools, a week in each place, in 36 different communities.

The CHAIRMAN. Then Ohio is taking care of this work pretty well.

Doctor THOMPSON. It is making a good start. We now have applications from nearly a hundred sources. We have gone to the legislature and asked them for \$30,000 this year and believe we shall get it, because the movement in Ohio is so popular that every county in which a school has been held is enthusiastic about it and wants the matter developed. There happen to be 88 counties in the State of Ohio, and you see that 36 schools would not cover half the counties. We now have on file applications for over a hundred of these schools for next year. The college is doing all it can as a college. We have some four hundred students in agriculture alone. But we have not any funds to do this extension work, and the people have recognized that fact. As I have said, we succeeded in getting this appropriation from the legislature because the people wanted that sort of work done. They originated the idea. They said, "We want this work done at home." That illustrates the origin of the movement in Ohio.

As the result of this movement, we are going on with this work in the State of Ohio, and if the State of Ohio, in its present stage of development, were left to itself, it probably could take care of itself. In fact, the State would not need the Federal Government for anything. We could build our own buildings and improve our own harbors and take care of ourselves. The facts are that when this Morrill Act started in 1862 the legislature of Ohio debated the thing for eight years before it accepted the proposition. At first it was proposed to divide the money between denominational colleges. For five years they declined to pay the expenses of the board of trustees having this in charge. But the outcome of that business is now that the University has three-quarters of a million dollars, and we are asking for a million dollars from this time on, and we are going to get it. The result has been simply that the Federal Government in taking the initiative has developed agricultural education in Ohio to-day as it never would have been developed but for your action.

The CHAIRMAN. But in this case the initiative is not needed from the Federal Government, evidently, because the State of Ohio has already started it and gone ahead with the work.

Doctor THOMPSON. But the State of Ohio is not the nation, quite.

The CHAIRMAN. Is there any State in which this work is not being done?

Doctor THOMPSON. The point is this, Mr. Chairman: To take this instruction about agriculture to the homes is not a state movement and it is not a county movement and it is not a local issue. If we

are to do this sort of thing, we have to do it all over the country, and that means that the whole people have to be interested; and the Federal Government is as much interested in increasing the facilities for production as the States are. And the Federal Government has pursued the policy not only of taking the initiative, but of encouraging the great cause of agriculture in the country at large.

So we regard this sort of an appropriation as a legitimate appropriation for the development of the present theory of federal aid for agriculture.

Now, as to the bill in other phases, I beg to say, first of all, that this being a movement from the people themselves and using the A. and M. colleges as their natural agencies, has brought up a question to these colleges as to what they may do in the matter, and they find themselves of necessity falling upon the state treasury, plus the Federal Treasury, to do this work. That is just practically the problem that is before us right here now, and I want to say just two or three things about the use of these funds, because that seemed to be incompletely handled a moment ago because of the lack of time.

The Federal Government in giving the land endowment to these States originally gave each State a certain number of acres, which constituted a trust fund or an endowment fund. It was dealt with differently in the several States, but in Ohio it was provided that that money should be covered into the state treasury, on which, as a pledge of good faith, the State promised to pay 6 per cent per annum perpetually. So we are drawing, at the expense of Ohio, 6 per cent on the endowment the Federal Government gave in the way of public lands, and shall draw it perpetually.

The CHAIRMAN. What income does the State get from that?

Doctor THOMPSON. The original endowment was about \$340,000. There is a further statute that provides that any money given to the State University now shall go into the treasury in the same way. For instance, Mr. Henry Folsom Page gave his entire estate, about \$200,000, and Mr. Henry Smith gave his entire estate, \$30,000. Therefore, that fund has grown—

The CHAIRMAN. My question was whether the State of Ohio had this \$340,000 invested?

Doctor THOMPSON. No; the State simply uses that money; it simply goes into the treasury and is appropriated out for current expenses. In the State of Ohio the expression is "The irreducible debt." The school fund is a part of the irreducible debt. They say, "We will give you 6 per cent forever on this." The State has no investments; the State has no debt and no investments of any sort.

The other phase of it is to get the proceeds of the second Morrill Act, which amount now to \$25,000, and that will soon be up to \$50,000 per annum. Certain restrictions were in the second Morrill Act, which confined the use of that money to certain subjects, such as history and political economy and agricultural sciences. But the next act, which increases that up to \$50,000, had some other additions which provide that some of it might be used in the preparation of teachers of agriculture. Now, the real problem before the agricultural colleges is to get men ready to do the things that the people want to have done, and every graduate of these colleges of agriculture could be used and used efficiently in some line of specific work. So the colleges have got the problem now of preparing the men for

it. The money that comes from the Federal Government, you see, is restricted to certain uses, and we can not use it for this extension work up to date. The money that comes from the State is restricted by the act of the legislature. For example, in our State we have a mill tax, plus several appropriations for buildings and such things, which it is not possible for us to use, except as specified. When they gave us \$20,000 for extension work, we had a specific fund for that purpose. Now this act provides that the funds herein arranged for may be used exclusively for that purpose, and each college must organize an extension and give itself to that particular kind of work.

So we are not duplicating work, and we are supplementing the carrying to the people of the message of increased production and better methods of agriculture.

Mr. McLAUGHLIN. In regard to what you said about the former acts providing for the instruction of men and the preparation of teachers for work that was later to be done, you are educating those teachers?

Doctor THOMPSON. Yes.

Mr. McLAUGHLIN. This extension work is the best work in which they can be engaged after they are educated?

Doctor THOMPSON. I would not say it is the best work, but it is a part of the general plan.

Mr. McLAUGHLIN. Very important and necessary?

Doctor THOMPSON. A very important and necessary work. As to whether it is more important that a man should teach extension or whether he should be preparing other teachers, of course, is a matter of opinion; but it is fundamental.

It seems to us that unless we can bring to the people that are in their homes the demonstration, we are going short of what we should do. I should like to say a word about what we do in Ohio on that matter as bringing to your mind concretely what it means. For example, in the springtime, directly, we shall go over the State in selected communities and give demonstrations in orchards. We shall take possession of an orchard, invite the community in, spray the orchard, put it in shape, or part of it, and carry that on for one or two or three years, demonstrating what can be done in the fruit line. That will carry us through the summer. In the early autumn we go to county fairs and State fairs with demonstrations in domestic science, and what not, as to agriculture, carrying it to people in those groups. Beginning in October, we vary the programme. If we are in southern Ohio, we put our emphasis on orchards and fruit raising; if we are in the Black Swamp, we put our emphasis on drainage, and corn and oats.

In other words, we try to meet the needs of the community. We consider the different soils, and we carry the message to the people as to what kind of crops are best in a free sandstone soil in eastern Ohio, for example, or what grows best in a limestone country elsewhere. Our effort is to carry to them the message they need for their local communities.

The CHAIRMAN. Has not every State practically begun this work?

Doctor THOMPSON. No, Mr. Chairman. I have statistics on that, which I intended to bring with me, but which I left in my rooms. But my recollection is that about 15 States have made some start, varying from about \$3,000 up to about \$20,000 or \$25,000 as the maxi-

mum. In the South for a series of years there have been some efforts put forth, and you may have heard of Mr. Knowlton, who has been working in that section; he has been doing some work in model demonstrations of one sort and another. But this is an effort to get the whole country over organized in a systematic and closely connected way.

The CHAIRMAN. But in States like Ohio and Kansas and Michigan, where it has been begun, the passage of this bill would simply mean a supplemental contribution from the Federal Treasury.

Doctor THOMPSON. It is bound to be that, because we have started.

The CHAIRMAN. I believe you said that you now have an appropriation for this work in your State of \$20,000 and you hope to get \$30,000 next year?

Doctor THOMPSON. Yes, sir.

The CHAIRMAN. The bill provides that after two years the Federal Treasury shall contribute not only the \$10,000, but a sum in addition thereto equal to any amount that may be contributed for the same purpose by the state legislature?

Doctor THOMPSON. Yes.

The CHAIRMAN. So that if you were getting an appropriation from the state treasury of \$30,000 the amount you would draw from the Federal Treasury for the benefit of the State of Ohio would be \$40,000. Am I right in the interpretation of the law?

Doctor THOMPSON. We would equal up to an amount not to exceed 1 cent per capita. So that the greatest amount under any conditions we could draw would be about \$42,000 to \$44,000, or, taking the population of the State as 4,250,000, the sum we would get would be \$42,500. But we would have to give the \$40,000 before the Federal Government would give \$40,000, and when the Federal Government gave \$42,500, for instance, that is the limit that they would give. Of course we could give as much more as we desired.

The CHAIRMAN. We have about 90,000,000 people in the United States now, and if the States should get up to their maximum, the draft on the Federal Treasury would be about \$900,000.

Doctor THOMPSON. Yes, sir.

The CHAIRMAN. And you think the Federal Treasury is able to stand that better than the individual treasuries of the States are able to stand their individual shares?

Doctor THOMPSON. Neither treasury would stand it now. I think it would be ten years before you would reach that, because it would be impossible to bring the States up to the maximum at once. The legislatures do move, but they don't move as rapidly as that. I have been ten years getting the revenue of the Ohio State University from \$300,000 up to three-quarters of a million dollars.

The CHAIRMAN. You are to be congratulated on that.

Doctor THOMPSON. I believe the State is to be congratulated.

The CHAIRMAN. I had a letter from the president of a state agricultural college, whom I know very well, and who is a personal friend of mine, bearing on this matter, and I wrote him very freely and frankly on the subject. I will read what I said to him:

I have no doubt every agricultural college in the country could make excellent use of \$10,000 more. But when the Adams Act and the Nelson amendment mature, the Federal Treasury will already be contributing \$80,000 a year to each of these institutions, in addition to whatever income they may draw from the original endowment. I should like to have your honest, bed-rock, Missouri-Democratic opinion whether that is not enough, and the States ought to do the rest.

My friend answered as follows:

I would not want to be quoted upon the matter——

And that is why I will not give his name——

but I think you are quite right in insisting that the States do their share now in forwarding this work, and especially is it safe to trust so popular a class of work as extension to the States for support.

This is the idea that I particularly wish to call to your attention:

The fundamental research requires a large outlay of money and a long time for its completion, and it can very properly be considered a function of the Government because of its importance, because of the extreme probability that the States will not do it; but work that has immediate results and is popular in its character, like extension work, can, I think, be very safely intrusted to the State.

Doctor THOMPSON. I would have made it public, if I had been he, if that were the way I felt. I have nothing to say on this subject that I would not be glad to say in the presence of 90,000,000 people.

The CHAIRMAN. The only reason that he did not want to make it public was because he thought it might be considered a rank heresy among the "craft."

Doctor THOMPSON. I don't agree with that gentleman; I think he is mistaken.

The CHAIRMAN. You do not feel at all embarrassed, then, even in view of the fact that the acts that have already been passed will contribute \$80,000 a year to each of these institutions, in asking for still more money from the Federal Treasury?

Doctor THOMPSON. No, I do not, any more than I would in buying my child a pair of shoes before her dress is worn out. I make no apology for asking for money for education anywhere, and I will not advocate a cause that I can not advocate honestly. I make no apology for the way we have used that money. I think it has been the best investment that has ever been made for education. I beg to say that there has never been a serious criticism made against that work; and if you want to do something in the interest of this country you will protect and promote her fundamental industries. When you reach the people in the matter of agriculture, you are reaching the people who sent you here. As I say, I make no apology for asking more money from the Federal Treasury for the development of our fundamental industries, and if agriculture and the mechanical arts and research work can not be put there, I do not know where we should put them. I do not believe you can do a single thing this session that will do more toward bringing this Congress into the limelight of favor than to pass this act. That is the way I feel about it. I believe if you want an appeal to the people in Jeffersonian simplicity that you will give them a chance to do the thing they want to have done, and they will say that you are representing them. We can spend in Ohio four times the money we have in education, and I am only sorry the day is not coming faster. Ten years ago the distinguished chairman knows what a fight we had for money in Ohio. But as the people get it, they appreciate how much good money spent in this way does, and they are glad to have it appropriated, and after they have seen the results they are glad to appropriate more.

The CHAIRMAN. It is true that the people of the State feel that any appropriation that comes from the Federal Treasury is money picked

up in the road. They do not realize that they are taxed for the money originally, and they feel that it is in the nature of a gratuity; and they ask for appropriations from the Federal Treasury, when they would not be willing to pay those same appropriations out of the state treasury.

Doctor THOMPSON. That is measurably true; but here is the real situation: This Government is a great institution. We have got to have rivers and harbors and all the machinery of government; that is a necessary expense. But the average man who is living on 80 acres of land, 6 miles from a town, does not know much about rivers and harbors, or the great agencies of government, but he does know about the question of education, and that education which will help his boy to become more useful and which will help him in his own work is of some real service.

The CHAIRMAN. We are not questioning that at all. We are looking at the money. We here are responsible for the expenditure of the federal revenues, and not of the states' revenues.

Doctor THOMPSON. And you are responsible for spending these revenues in such a way as to keep this great country strong and productive, virile in its life; and our contention is that this money will do as much as money spent on the rivers and harbors or anything else, and for that reason that this would be a wise expenditure of our revenues. You are here to spend money, not to make money, and we appeal to you that this is a wise expenditure of money.

The CHAIRMAN. But we have to raise the money before we can spend it, and in the face of a deficit in the Treasury, does it not occur to you that a little matter of \$10,000, which is so small a figure to any of the States in the Union (so small a thing that it could not find itself in the percentage on gross valuation), ought to be taken care of by the States rather than putting the burden of the aggregate of those sums of \$10,000 each on the Federal Government? It only means \$10,000 to Ohio; it means half a million dollars to the Federal Treasury, and twice that much if the act is carried on and matured.

Doctor THOMPSON. Well, the President said last night that this Government was a \$750,000,000 government instead of a billion dollar government, and \$500,000 is just one fifteen-hundredth part of that. So when you think about this appropriation, it is a very small thing to the Federal Government.

Let me say that taxation is an important thing. There has probably never been a revolution in the world except that it was brought about on a question of taxation. The truth is to-day that the Federal Government is getting from the people probably seven hundred or eight hundred million dollars annually, which is four times as much as all the States combined get from the people. All the aggregates of all the States in the Union in the matter of taxes do not run up to more than \$350,000,000. So the people paying taxes are paying about \$350,000,000, we will say, into the States, and three times that much into the Federal Government.

The CHAIRMAN. And do you know why?

Doctor THOMPSON. Because the Government has got its hands on all the unconscious sources of revenue and can get it easily; because the States have to put their hands down on the old gray mare, and

that is where the citizens feel it. The disposition of Congress is to put more and more upon these conscious sources of revenue.

The CHAIRMAN. And why is it necessary for Congress to do it?

Doctor THOMPSON. Not because of any extravagance in agricultural appropriation.

The CHAIRMAN. But is it not because of the activities of the Government in fields into which a few years ago they never pretended to go?

Mr. McLAUGHLIN. And liberal as the Federal Government has been with the States in the matter of maintaining agricultural colleges, is it not true that nearly all the money is spent at the colleges and the people are not really in touch with the work that is being done, and this money would be about the only money that would go out so that the people would be in touch with the work accomplished by this expenditure?

Doctor THOMPSON. This is knocking at the farmer's door; the other is asking the farmer to come and knock at the college door. That is the difference between the two things. While we do not object to the farmer knocking at the college door, we would like to knock at his door awhile, and we believe that he is the man that ought to be considered in this matter. I am in favor of modern revenues and modern expenditures, and I do believe, gentlemen, that the money we invest in our fundamental industries like agriculture has brought us more strength and more power to raise money than anything else we have done. You justify rivers and harbors appropriations on the ground of commerce, and I agree to that; but you justify your expenditures in agriculture by what it has done. Take what Babcock has done in Wisconsin. Working in a room not nearly as large as this, for years and years, he made a discovery which has not only redounded to the benefit of Wisconsin, but to that of the United States; and if what he has done had been the only thing done as a result of the enactment of the Hatch Act, that would have been more than enough to pay for that whole expenditure.

And so we think we have an act here that the people will approve, and you need not be afraid of expending money when the people want it expended.

The CHAIRMAN. There are bills pending before this committee, or were in the last Congress—I have not looked so carefully into the bills pending in this Congress—but there were bills pending before this committee alone in the last Congress which called for an aggregate appropriation of \$400,000,000; and the people were asking for every one of them. You say as long as we spend only what money the people demand, we will meet with the approval of the people. Suppose we had passed those bills. We would have had \$400,000,000 extra deficit. Do you suppose the people would have excused it on the ground that they demanded it?

Doctor THOMPSON. I think this committee would do itself credit if they would say on matters pertaining to agriculture that the Federal Government has spent a large amount of money in that work and that the committee will not listen to miscellaneous bills on this question and that question that spring up until their value is shown.

This association comes here to discuss seriously with you a bill that can be approved by all the people. There are other bills that we

would not approve. So your statement that miscellaneous bills spring up is a just statement, Mr. Chairman.

The CHAIRMAN. And yet the people who are advocating these other bills come as you do, and say that all the people want those bills.

Doctor THOMPSON. You have dealt with the people as much as I have, I grant; but you recognize that there are people and people. And when the college of Ohio says that the people of Ohio want this, it is not a small convention that says, "We, the people, demand so and so."

The CHAIRMAN. And yet there are only four of you here. Has this matter been brought before the entire association?

Doctor THOMPSON. The matter has been brought before the entire association; yes, in its meeting last August, in Portland, Oreg. And the question was fully discussed there, and that meeting adopted these resolutions, and we are here in response to them. Not only that, but they changed the constitution in order to make provision for this. This is not a sudden movement.

The CHAIRMAN. Has any representative of the people except the officials of agricultural colleges brought this matter to your attention and asked for the enactment of this law?

Doctor THOMPSON. Yes; state granges and the National Grange, the commercial organizations of all sorts, of States, have approved it.

The CHAIRMAN. And so they have all these other things. I can bring forth such indorsements for national good roads and national drainage.

Doctor THOMPSON. I am glad you are still a man of faith, Mr. Chairman.

Mr. McDERMOTT. For the next fiscal year we are appropriating over \$1,000,000 for experiment stations. What benefit do you get; what cooperation do you make?

Doctor THOMPSON. The Ohio state experiment station is at Worcester, and it is not associated with the university; but we give approximately \$80,000 or \$90,000 a year to the experiment stations alone. They are asking for more than that this year, and I do not know what the legislature will do. Two years ago they gave them \$75,000.

The CHAIRMAN. I am sorry to put any limit at all on this interesting discussion, but the post-office appropriation bill is before the House this morning, and we will have to adjourn.

Doctor THOMPSON. Allow me to thank you for the hearing and to assure you that I enjoyed very much the opportunity to get back at the chairman, and I am sure he enjoyed it or I would not have given it to him so strong.

(Thereupon, at 11.55 o'clock a. m., the committee adjourned.)

MEMORANDUM ON THE McLAUGHLIN BILL, H. R. 15422.

TO PROVIDE FEDERAL AID FOR AGRICULTURAL EXTENSION TEACHING CARRIED ON BY THE SEVERAL AGRICULTURAL COLLEGES.

I.—WHAT IS EXTENSION WORK IN AGRICULTURE?

It is extending the teaching of the college of agriculture to the people not resident students of the institution. The subjects taught include all phases of practical agriculture and horticulture, of home making, and domestic economy, in fact any topic—educational, economic, social—that has a definite bearing upon rural advancement.

Many methods are in use; others are rapidly developing; a rough grouping of these methods could be made as follows:

A.—SYSTEMATIC INSTRUCTION, OR FORMAL TEACHING:

1. *The lecture course*.—Given before various clubs, and worked out with considerable thoroughness.
2. *The reading course*.—Laid out by the college, but pursued at home.
3. *The correspondence course*.—Outlined by the college. Questions asked and papers corrected by correspondence.
4. *The movable school*.—May last a week, or two weeks, held partly at local expense and carried on just as a school would be carried on, but itinerant in character.
5. *Permanent demonstration plots or farms* on which the value of certain methods or of certain varieties is actually demonstrated in various parts of the State.
6. *Study clubs*, such as boys' corn clubs, study clubs within the Grange, or in women's clubs, etc.

B.—TEACHING THAT IS MORE OR LESS INFORMAL, ADVISORY, OR SUGGESTIVE:

1. *Conventions*:

- (a) Farmers' institutes, when carried on by the agricultural colleges, as they are in two-thirds of the State.
- (b) Conferences on special agricultural subjects, such as dairying.
- (c) Teachers' institutes for agricultural purposes.

2. *Itinerant lectures*:

- (a) Miscellaneous lectures on call and under all sorts of auspices.
- (b) Traveling advisers or field agents, who spend their time among the people, giving advice and practical aid along special lines.
- (c) The permanently located expert or adviser for a county or a given district.

3. *Literature*:

- (a) Publications, monographs, leaflets, press bulletins.
- (b) Ordinary correspondence: This work of agricultural colleges and experiment stations is becoming enormous.
- (c) Traveling libraries.

I.—WHAT IS EXTENSION WORK IN AGRICULTURE?—Continued.

B.—TEACHING THAT IS MORE OR LESS INFORMAL, ETC.—continued.

4. *Object lessons:*

- (a) Field demonstrations and platform demonstrations. Like the permanent demonstrations, only more informal—more in the nature of movable affairs, like spraying demonstrations, etc.
- (b) Educational exhibits at fairs, including stock judging, etc.
- (c) Excursions to the college to study experiments or see demonstrations.
- (d) Traveling railway trains, trolley cars, or vans carrying material for educational purposes.

C.—COORDINATION OR COOPERATION:

- 1. *Holding "conferences on rural progress,"* to bring together all the people interested in rural life, to discuss the larger problems of community betterment.
- 2. *Cooperation with other agencies* and various activities for promoting agriculture, like chambers of commerce, boards of agriculture, etc.

II.—THE NEED OF EXTENSION WORK.

- 1. This work has an intimate relation to increased agricultural production, consequently to the future cost of living. A better use of present areas is imperatively demanded. It can be secured only by popular education of the farmers. No possible legislation will do so much to increase agricultural production as a widespread system of agricultural extension teaching.
- 2. Conservation of our soil resources is the most important phase of the conservation movement. Absolutely the only way to conserve soil resources is to conserve the intelligence of the soil worker. No laws, no compulsion will solve this problem. The only way is to educate the great masses of farm workers, and the only way to reach them effectively is by a complete system of extension teaching.
- 3. Extension work teaches farmers to help themselves. It makes available to them that which they most need to know, and leaves them the task of applying that knowledge to their work.
- 4. The very character of extension work itself, as shown by the above outline, indicates its value as a practical means of reaching farmers with things that they can see, and with words that they can hear. There is a special need of systematic study on the part of farmers, but it will come only as this work is directed and encouraged.
- 5. The stimulus of an organized educational campaign, to go right to the farmers in the neighborhoods where they live. It will mean a great uplift for the work of agriculture.
- 6. Its democratic impulse is worthy of note. It aims to reach every farmer on the land. It is the most democratic system of education ever proposed.
- 7. Foreign countries which are noted for their development of intensive agriculture have accomplished this almost wholly through agricultural extension teaching.
- 8. The need and value of this work are shown by the results already accomplished in almost all of our States by the meager work thus far undertaken. The work done is small, but it has accomplished good results. (For work accomplished and now going on, consult with Office of Experiment Stations, U. S. Dept. of Agriculture.)
- 9. There is great need of an "arousement" of all our people on behalf of a new agriculture and country life. Nothing will do this better than a properly directed scheme of agricultural extension teaching.
- 10. Colleges of agriculture which are attempting this work have more calls for it than they can fulfill; hence the demand for the work is, of itself, an argument for its need.

III.—THE NEED OF NATIONAL AID FOR EXTENSION WORK.

1. Agriculture is a national asset, and the education of our farmers is of national concern. Any individual who farms this year better than he farmed last year contributes not only to his own welfare but to the national welfare. Any community that develops a system of intensive farming not only serves itself but serves the consumers and serves the nation. The development of better agriculture is not a matter of indifference to the country as a whole. New England is just as much interested in the growing of cotton and of meat as are the South in the former and the West in the latter. It is just as significant to the Eastern States that the farmers of the South and West shall be made more prosperous, as it is to those regions themselves. Therefore this is not a state issue, but a national issue, and it, therefore, should have national aid.
2. Aid from the Federal Treasury is logical in principle and theory. Federal aid was first given for the establishment of colleges of agriculture to teach the students who came to those institutions. Federal aid was next given for the development of research and experiment, in order that new knowledge should be obtained about the science and practice of agriculture. But each agricultural college has for its task not only the gaining of new knowledge, and the teaching of students who come to it, but also that of disseminating this knowledge broadcast over the land. Therefore, inasmuch as these institutions have developed two of their functions by federal aid, it is perfectly consistent and logical that they shall develop this third function—that of extension teaching—by federal aid. Hence national aid should be invoked to develop machinery for distributing the information and inspiration which center at these experiment stations and agricultural colleges.
3. Federal aid is also logical historically. State aid alone has never been adequate for a great system of agricultural education. Before the first Morrill Act was passed, there were several state agricultural colleges; but there was no complete system of agricultural colleges until after the Morrill Act was passed, in spite of the fact that the question of establishing such colleges had been discussed and agitated for more than a generation. When the Hatch Act was passed, there were quite a number of experiment stations in existence, but it was the Hatch Act that gave breadth and reality to a national system of agricultural research. There are to-day quite a number of States which are doing extension work, but we can never have a complete system of educating the farmers who do not frequent educational institutions unless we have the impetus which can be given only by the nationalized system of extension teaching.
4. The money already going to agricultural colleges and experiment stations is not doing all that can be done to forward agricultural education, until the work of these institutions is made more fully available to all the people. Therefore, it is fair to ask national aid to complete the work originally developed by the initiative of federal appropriations.
5. Individual States need the stimulus of national aid. State legislatures feel the pressure of increased appropriations just as much as Congress feels the pressure of increased appropriations. States will naturally respond to national leadership and financial aid, supplementing this aid out of their treasuries, when they would be indifferent to a merely local movement.
6. Federal aid will give national sympathy and interest to popular education in agriculture on the part of all our people. Farmers especially have great faith in a movement which has been recognized by Congress and by the President of the United States.

III.—THE NEED OF NATIONAL AID FOR EXTENSION WORK—Continued.

7. National aid would give unity of organization and method to this work. The present work is both desultory and chaotic. It is not desirable to have it exactly alike in all States. It is desirable to have it comprehensive and unified and to give it general direction, as could be done through the Federal Department of Agriculture.

IV.—THE ADVANTAGES OF THE PRESENT BILL.

Outline of the bill.—The bill provides that each State shall be granted \$10,000 a year by the Federal Government, for the purpose of carrying on extension work in agriculture, domestic science, and other phases of rural life. This would mean about \$500,000 a year.

After two years, any State which has accepted this grant and organized a department of extension teaching at its agricultural college, may have from the Federal Treasury an amount of money, in addition to the \$10,000, equal to the amount which it appropriates from the state treasury, the maximum limit of the amount to be granted to each State from the Federal Treasury, in addition to the \$10,000, being 1 cent per capita for the population of the State.

Thus the total appropriations from the National Treasury would aggregate about \$500,000 for the initial appropriations, and about \$1,000,000 more on the basis of 100,000,000 people in our country, or about a million and a half a year all told when the law was in complete operation in every State, which would probably not be for some years.

1. This bill, if it became a law, would stir at once a nation-wide campaign for popular agricultural education.
2. It gives the people of the small, poor, or backward State an even chance to get started with the people of the more progressive and wealthy States.
3. It gives a certain measure of national direction, through the Department of Agriculture, but leaves the details to States. Thus it divides responsibility between the States and the nation.
4. It leaves to the individual States the future development of the work.
5. It gives adequate strength and breadth to the whole scheme of extension teaching, and puts it on a good, firm basis of practice.
6. It includes woman's work on the farm, a field hitherto almost untilled by our agricultural educational enterprises.
7. It puts the work into the hands of the best men our country can afford, namely, the workers in our agricultural colleges and experiment stations.
8. It develops in each State immediately a central plant, or office, to which all organizations or individuals interested in agriculture can look for help, and with which they can cooperate. It brings the work of research and college teaching close to the people.
9. It relieves experiment stations of an immense amount of work which they are now performing in disseminating agricultural information, but which does not really belong to them, and thus gives their men time for more thorough research and experimental work.
10. It completes the circle of national aid to agricultural colleges through the Morrill acts, the Hatch and Adams acts, and the Nelson act. It rounds out therefore a system of national aid for agricultural institutions of higher grade, and the work of these institutions is not complete until this task of disseminating information into every corner of the land is complete.

V.—MISCELLANEOUS CONSIDERATIONS.

1. This appropriation should be regarded not merely as a subsidy to agriculture, but as a statesmanlike act, of aid to consumers and producers alike, for it will accomplish more than any other one measure in developing adequately our fundamental industry of growing food for the increasing population.
2. This appropriation should be regarded not primarily as an appropriation which expends money without return, but distinctly as the investment of a nation in its most important single industry.
3. It is estimated that the annual value of our agricultural products is \$8,000,000,000. Can not the Government wisely invest \$1,500,000 a year for the purpose of teaching the 12,000,000 farmers and farm workers how to do their work better?

VI.—HAS THIS BILL POPULAR SUPPORT?

1. It is to be noted that other colleges not agricultural are rapidly taking up this very line of extension work among the people of the cities. This indicates their faith in the value of this type of work. In fact, it is now becoming a recognized obligation upon every well-equipped college and university to reach out to the people who can not become resident students.
2. The farmers believe absolutely in such extension work as has already been done, and indeed their chief reason for their present faith in our agricultural colleges and experiment stations is the fact that these colleges and experiment stations have attempted to help directly the farmers on the land. The farmers are willing to help support the present work, and they will welcome more of it; indeed, they constantly call for it.
3. The National Grange, and numerous state granges, have definitely pledged their support to this particular bill.
4. The same is true of the National Farmers' Congress.
5. The Association of American Agricultural Colleges and Experiment Stations, representing every agricultural college and experiment station in the United States, has definitely placed itself on record in favor of this particular bill.
6. The Commission on Country Life, after many hearings in all parts of the country and after securing the returns from tens of thousands of people all over the land, made the development of a national system of extension work one of its three fundamental suggestions for movements to get under way at once. It also said:

"The subject of paramount importance in our correspondence and in the hearings is education. * * *

"We find a general demand for federal encouragement in educational propaganda, to be in some way cooperative with the States. The people realize that the incubus of ignorance and inertia is so heavy and so widespread as to constitute a national danger, and that it should be removed as rapidly as possible. It will be increasingly necessary for the national and state governments to cooperate to bring about the results that are needed in agricultural and other industrial education.

"Beyond and behind all educational work there must be an aroused intelligent public sentiment; to make this sentiment is the most important work immediately before us. The whole country is alive with educational activity. While this activity may all be good, it nevertheless needs to be directed and correlated, and all the agencies should be more or less federated. The arousing of the people must be accomplished in terms of their daily lives or of their welfare. For the country people this means that it must be largely in terms of agriculture. Some of the colleges of agriculture are now doing this kind of work effectively, although on a pitifully small scale as compared with the needs. This is extension work, by which is meant all kinds of educational effort directly with the people, both old and

VI.—HAS THIS BILL POPULAR SUPPORT?—Continued.

young, at their homes and on their farms; it comprises all educational work that is conducted away from the institution and for those who can not go to schools and colleges.

"To accomplish these ends, we suggest the establishment of a nation-wide extension work. The first or original work of the agricultural branches of the land-grant colleges was academic in the old sense; later there was added the great field of experiment and research; there now should be added the third co-ordinate branch, comprising extension work, without which no college of agriculture can adequately serve its State. It is to the extension departments of these colleges, if properly conducted, that we must now look for the most effective rousing of the people on the land."

The above memorandum is submitted on behalf of the committee on extension work of the Association of American Agricultural Colleges and Experiment Stations, comprising the following gentlemen: Charles R. Van Hise, president of the University of Wisconsin; Charles F. Curtiss, dean of the division of agriculture and director of the experiment station of Iowa State College; W. C. Latta, superintendent of Indiana Farmers' Institutes; Andrew M. Soule, president of Georgia Agricultural College; E. A. Burnett, dean of the School of Agriculture and director of the experiment station of the University of Nebraska; Kenyon L. Butterfield, president of Massachusetts Agricultural College, chairman.

TO ESTABLISH STANDARD PACKAGES AND GRADES FOR APPLES.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Wednesday, March 9, 1910.

The committee met at 10.30 o'clock a. m., Hon. Charles F. Scott (chairman) presiding.

The committee had under consideration the following bill:

[H. R. 16019, Sixty-first Congress, second session.]

A BILL To establish standard packages and grades for apples, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purposes of interstate and foreign commerce and commerce within the District of Columbia or the Territories of the United States, the term "closed package for apples" shall apply to any barrel, box, or basket in which the apples can not readily be seen or inspected.

SEC. 2. That the standard closed packages for apples which shall be shipped or delivered for shipment in interstate or foreign commerce or sold or offered for sale within the District of Columbia or the Territories of the United States are as follows:

First. The standard box package for apples is a box having a capacity of not less than two thousand three hundred and forty-two cubic inches when measured without distention of its parts.

Second. The standard basket package for apples is a basket having a capacity of not less than two thousand three hundred and forty-two cubic inches, when measured level full, without distention of its parts.

Third. The standard barrel package for apples is a barrel of the following dimensions when measured without distention of its parts: Length of stave, twenty-eight and one-half inches; diameter of head, seventeen and one-eighth inches; distance between heads, twenty-six inches; circumference of bulge, sixty-four inches outside measurement.

SEC. 3. That the standard grades for apples which shall be shipped or delivered for shipment in interstate or foreign commerce or which shall be sold or offered for sale within the District of Columbia or the Territories of the United States are as follows:

Apples of one variety, which are well-grown specimens, hand picked, of good color for the variety, normal shape, practically free from insect and fungus injury, bruises, and other defects, except such as are necessarily caused in the operation of packing, or apples of one variety which are not more than ten per centum below the foregoing specifications, are standard grade "U. S. Size A," if the minimum size of the apples is two and one-half inches in transverse diameter; or are standard grade "U. S. Size B," if the minimum size of the apples is two and one-fourth inches in transverse diameter; or are standard grade "U. S. Size C," if the minimum size of the apples is two inches in transverse diameter.

SEC. 4. That apples in closed packages shall be deemed to be misbranded within the meaning of the act approved June thirtieth, nineteen hundred and six, entitled "An act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes" (Thirty-four Statutes, page seven hundred and sixty-eight), in the following cases:

First. If the package bears any statement, design, or device indicating that the package is a standard closed package for apples, as herein defined, and the capacity of the package is less than the capacity prescribed by section two of this act for standard closed box packages or standard closed basket packages or standard closed barrel packages for apples, as the case may be.

Second. If the capacity of the package is less than the capacity prescribed by section two of this act for standard closed box packages or standard closed basket packages or standard closed barrel packages for apples, unless the package shall be plainly marked on end and side, in the case of boxes, with the words "short box," or with the number of cubic inches the box actually contains; or, in the case of baskets, with the words "short basket," or with words or figures showing the fractional relation which the actual capacity of the basket bears to the capacity prescribed by section two of this act for standard closed basket packages for apples; or, in the case of barrels, with the words "short barrel," or with words or figures showing the fractional relation which the actual capacity of the barrel bears to the capacity prescribed by section two of this act for standard closed barrel packages for apples. The marking required by this paragraph shall be in block letters of size not less than seventy-two point block gothic.

Third. If the package bears any statement, design, or device indicating that the apples contained therein are standard grade "U. S. Size A," "U. S. Size B," or "U. S. Size C," as the case may be, and the apples do not conform to the requirements prescribed by section three of this act for apples of the particular grade.

Fourth. If the package bears any statement, design, or device indicating that the apples contained therein are standard grade "U. S. Size A," "U. S. Size B," or "U. S. Size C," as the case may be, and the package fails to bear also a statement of the name of the variety, the name of the locality where grown, and the name of the packer or the person by whose authority the apples were packed and the package marked.

SEC. 5. That this act shall be in force and effect from and after the first day of July, nineteen hundred and ten.

The CHAIRMAN. The committee has met this morning at the request of Representative Lafean, the author of the measure we have before us for consideration, the bill (H. R. 16919) "To establish standard packages and grades for apples, and for other purposes." A number of gentlemen are here desiring to be heard on the measure, and the committee will be glad to listen to what they have to say. Before commencing the oral hearing, however, I desire to call the attention of the committee to the fact that I am in receipt of a large number of communications in relation to the bill; telegrams and letters and resolutions from different organizations from various parts of the country. I take it that, following our usual custom, these communications will simply be placed on file in connection with other data relating to the bill, but will not be made a part of the hearings, inasmuch as they necessarily repeat the same arguments, to a very great extent, and would not particularly enlighten the committee. Mr. Lafean, as the author of this bill I presume you desire to make a statement in regard to it, and the committee would be very glad to hear you, and would ask you then to introduce other gentlemen whom you wish to have heard.

STATEMENT OF HON. DANIEL F. LAFEAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA.

Mr. LAFEAN. Mr. Chairman and gentlemen of the committee, I am the author of the bill H. R. 16919, and we have quite a number of gentlemen here representing the apple shippers' associations, horticultural associations, and fruit growers' associations of all sections of the United States. The bill in itself seems to me a meritorious one, and two points recently have come to my attention that forcibly impress upon my mind the importance of a standardization of the package and the grades.

I desire in this connection to read an editorial that appeared in *The Union and Advertiser* of Rochester, N. Y., of Tuesday, February 8, 1910, which is as follows:

THE FRUIT-PACKING QUESTION.

The question of the proper packing of fruit is once more brought forcibly to the growers of western New York as a result of recent developments in Germany. Recent official figures show that there has been a decided falling off in the importation of American apples because the people of that country can not trust the American apples to run uniformly. Consul-General Skinner, of Hamburg, states that the Americans could regain their lost ground if they would form fruit associations and combine on the effort to secure proper packing of fruit and accompany the fruit to the foreign markets with certificates vouching for the contents of packages. Germany imports \$22,000,000 worth of fruit annually. The Americans are losing the business. They may have it again just as soon as the German people discover that the packers are honest and deliver the goods as recommended. The farmers of this section are waking up to the situation, and the action of the recent fruit conventions in this city in recommending proper legislation shows a determination to fulfill requirements.

That shows the fault of the present system of packing apples. It shows how they are losing ground in foreign countries, and it points out a way to overcome that. The bill which I have introduced seems to cover that ground.

There is another phase of the matter that has come to my attention within the last day or two, which seems to be highly important, and that is with regard to making loans upon packages of apples, and in this connection I want to read you two letters from bankers. The first is from the president of the Central National Bank of Buffalo, N. Y. It reads as follows:

THE CENTRAL NATIONAL BANK,
Buffalo, N. Y., March 2, 1910.

C. P. HUGO SCHOELLKOPF, Esq.,
Care Schoellkopf, Hartford & Hanna Co.,
Buffalo, N. Y.

MY DEAR MR. SCHOELLKOPF: Acknowledging the receipt of yours of the 1st instant, I beg to state that I have read the H. R. 16919 very carefully, and believe its passage would be welcomed by all parties interested. I can not see where it would meet with any objection whatever.

It is manifestly better for all concerned to have a uniform size of barrel and basket, and a uniform method of properly marking same as to the quality of its contents.

I trust the bill may speedily pass and become a law by its terms on and after July 1 next.

I thank you for calling the matter to my attention. Believe me,
Very truly, yours,

GEO. F. RAND, *President.*

Then, I have another letter from the president of the Marine National Bank of Buffalo, N. Y., which reads as follows:

THE MARINE NATIONAL BANK,
Buffalo, N. Y., February 28, 1910.

C. P. HUGO SCHOELLKOPF, Esq.,
Care of Schoellkopf, Hartford & Hanna Company,
Buffalo, N. Y.

MY DEAR SIR: I have your letter of the 18th instant, inclosing copy of House of Representatives bill No. 16919, relative to establishing standard packages and grades for apples, and for other purposes. The bill appears to me to cover a distinct need that is felt by bankers generally whenever an application for loan is made on this kind of collateral, and I trust that you may be successful in your endeavor to see this bill enacted into law.

Yours, very sincerely,

S. M. CLEMENT.

These letters show that the bankers, in loaning money upon a commodity like this, realize the importance of having some standard which would give them additional security for the money that they may loan. Those are two points which it seems to me are strong points in favor of having some national bill providing for the standardization of the package and the barrel.

There are quite a number of gentlemen here who want to be heard on the various phases of the bill, and I have instructed them to be to the point as much as possible, but not to be so short as not to convey to you the real import of the bill. I feel that this is a bill of national importance, and that it should be given full consideration. I will ask Mr. William L. Wagner, of Chicago, Ill., who represents the International Apple Shippers' Association, to talk to you next.

Mr. RUCKER. Before Mr. Lafean takes his seat I would like to ask him a question or two, with his permission.

Mr. LAFEAN. Certainly.

Mr. RUCKER. I did not arrive until a moment ago. I would like to ask you if you have had any information from the producers and growers of apples with reference to this bill?

Mr. LAFEAN. Yes, sir.

Mr. RUCKER. What is their sentiment?

Mr. LAFEAN. They are all in favor of it.

Mr. HAWLEY. Mr. Chairman, I would like to take serious exception to that statement.

Mr. LAFEAN. Generally so, I will say.

Mr. POINDEXTER. Will you allow me to interrupt you just one moment? In the great northwestern part of the country, which has grown to be one of the most important apple-growing and apple-shipping sections in the United States, the growers are practically unanimously opposed to this measure, and very strongly opposed to it.

Mr. RUCKER. That is the reason I asked the question, because you said some of the growers were not favorable to it.

Mr. LAFEAN. Oh, yes; it would hardly be fair to suppose that a man could draw a bill that would be satisfactory to everybody.

Mr. RUCKER. That suggestion was emphasized in the suggestion just made.

Mr. LAFEAN. But I think the greater portion of the people of the country are in favor of it.

Mr. RUCKER. The information we received from the growers that they were not in favor of it was somewhat emphasized by the statement I understood a gentleman to make a moment ago, that the bankers were asking for this bill in order to have better security for loans of money that they might make to you.

Mr. LAFEAN. It only shows how they look upon a measure of that kind. They look upon it as being a benefit.

Mr. RUCKER. The sentiment can not be said to be unanimously in favor of the bill, then?

Mr. LAFEAN. No, sir; not unanimous, but the greater proportion of the people are in favor of it.

Mr. HAWLEY. Following the usual custom of the committee, Mr. Chairman, I ask that the witnesses be sworn.

TESTIMONY OF MR. WILLIAM L. WAGNER, OF CHICAGO, ILL.

(The witness was sworn by the chairman.)

Mr. WAGNER. In addressing you, I do so primarily on behalf of the International Apple Shippers' Association. This association is an organization which comprises within its membership some 400 operators and dealers in apples within the United States. They, in their associations, handle probably not less than 75 per cent of the commercial apple crop of the United States. This organization was started because of the lax and irregular methods in the handling of this fruit, and the necessity for having some concerted action toward the regulation of standards, standard packages, and so forth. It was organized some fifteen years ago. It was thought that through their associations and through their efforts the various state horticultural associations, pomological associations, and so forth, might be brought closer together, to the end that we might standardize the method of handling this fruit. That such standardization is necessary is indicated by the magnitude of the industry itself. To those who are not engaged in the industry and are not familiar with it the figures will probably seem larger than might be anticipated. As a matter of fact, the crop of apples grown in the United States from year to year, according to such statistics as have been gathered, has varied from some 26,000,000 barrels to 68,000,000 barrels, making from 150,000 to 450,000 carloads of this fruit, producing in revenue to the railroads more than almost any of our other products.

We found, though, that as time went on our efforts were futile, and that to bring things to the point where our own markets might be conserved and broadened and extended as they should be, national legislation would be required. The necessity for this became more apparent because of the tremendous impetus given to orcharding in this country. As indicated by the best figures obtainable, there were in this country in 1908 something in excess of 201,000,000 apple trees of bearing age. The possibilities in the way of a crop under such figures as these are simply stupendous, and unless Providence should intervene the figures that have been named for the production of this country will very likely in the near future seem small.

Realizing at last that our efforts were futile, the International Apple Shippers' Association took up the question of federal legislation, and the Lafean bill as presented to you is the final outcome of that. The work in this direction was first taken up in the fall of 1907, some two years and a half ago, when a tentative bill was drafted and submitted to the orchardists, the horticultural associations, the dealers, and all similar organizations, through the press and through the mail, and their cooperation and assistance was asked. The first assistance we received was from the New York Fruit Growers' Association, and the Western New York Horticultural Association. In conjunction with them we went over the bill and amended it and changed it. We then again submitted it to the people of the country, calling for a conference in the city of Washington in January of last year. This conference was attended by all who desired to attend, and the representation was very general, representatives coming from the great States of the Northwest and from all of the large producing States, and those organizations which might be interested in the central west and in the east.

The outgrowth of that conference, after we had figured out every possible position and conclusion, and had met every objection and had compromised here and there, was this bill. This bill presents to you two salient features. First, it provides for a standard grading of apples. Up to this time we have had nothing in the way of a grade that meant anything. While the International Apple Shippers' Association has for itself designated what shall constitute what we have termed a No. 1 apple, that has no binding effect on anyone, and means nothing anywhere in this country except among the members of that organization, and can not be made binding upon anyone. Every section of the country has its own conception of a grade, the result being that we have nothing definite in the way of a standard. We have nothing upon which we can base contracts, or upon which we can in reality enforce contracts. That which is the custom in one section is not the custom in another section.

The other feature of the bill is the provision as to the package itself. A standard package is provided; so that he who operates in this fruit may know, when he enters into a contract, or when he makes a purchase of any character, what the capacity of the container of the fruit is, and how much fruit he is to obtain. In certain of our States short barrels, as they are termed, have been in use for many years, and it is a common matter for a man engaged in the business as I am, in making a purchase of apples from certain individuals in certain sections, after making such stipulations as he can, that the man from whom he purchases shall deliver so many barrels of such a quality of fruit, to find when that man has made delivery that he has given him a barrel that contains about ten pecks instead of twelve pecks, which is what we consider a barrel. The New York State barrel is the recognized basis for all transactions in apples, it being held to be the standard, the only thing that has come down to us from our forefathers.

Mr. DUMAS. Have we a standard barrel in Illinois, a barrel established by act of legislature?

Mr. WAGNER. Some effort has been made toward that end, but as yet, I believe, nothing has been accomplished. To get in the line of standardization, every one of our municipalities has been making more and more rigid laws in regard to the sale of all these commodities. The city sealer is a busy man in practically all of the large municipalities. To enable us to broaden our scope and place into consumption a larger volume of this fruit, it is absolutely essential to us that we shall have packages that may be sold in their entirety, so that what will class as a bushel may measure out 4 pecks, or a barrel, 12 pecks, or that it may be broken into parts and so sold. In the city of Chicago, where I reside, were we to attempt, or were our retail merchants to attempt, to sell by struck measure any of these commodities, it would mean the police court, and that very soon. The result of that is that in those packages which are not standard, as we term them, and as we desire them, the trade is restricted, values are not obtained, and dealings in them are not only uncertain but dangerous.

After we had progressed to the extent of having this hearing called, the attention of other organizations was brought to this matter. Representatives of some of these organizations will address you in line with what Mr. Lafean has said relative to banks. We who

operate in this fruit are of necessity borrowers at our banks to carry on our transactions, because of the magnitude to which they attain. We have not been able to give to our banks that assurance that was necessary, that we were offering an adequate security for such moneys as they might advance to us. Realizing that fact, I myself have made inquiry of numerous banks, and I would like to present, for such consideration as you may give to them, letters from large banks, such as the First National Bank of Chicago, the Corn Exchange National Bank of Chicago, the Continental National Bank of Chicago, and other banks of that character, as well as banks like the Citizens' National Bank of Albany, N. Y., and the People's Bank of Buffalo, and others. Wherever banking authorities have been approached on this subject they have agreed absolutely and universally in regard to the necessity of such legislation, in order that we might carry on the business to a greater extent and with greater security to all. I have taken up the matter with the jobbing trade of the country generally, and I would like to submit for your consideration petitions to your committee representing some fifty cities, jobbing cities, in thirty-two of the States of the United States, this including the District of Columbia; and in connection with that I would say that wherever a dealer in this fruit has been approached, without exception so far as I know, he has approved, and approved heartily.

We have taken up these matters with the various horticultural associations of the country, taking in all of the large producing cities. So far as we have approached them we have found unanimous consent and agreement with us in all of the States, with the exception of some four of the northwestern producing States, where during the past year some 500,000 or 550,000 barrels—reducing from boxes to barrels—were produced, out of the total of 26,000,000 barrels produced in the United States. In that section they have agreed with us absolutely in all features of the bill with the exception of that as to the size of the box.

Mr. HAWLEY. Mr. Chairman, I would like to take exception to that statement.

Mr. POINDEXTER. I was just about to say the same thing.

Mr. HAWLEY. And there will be other objections brought out to other parts of the bill when the merits of the bill are discussed on this side.

Mr. WAGNER. If I may be permitted, I would like to quote from a letter which I hold in my hand from E. H. Shepard, of Hood River, Oreg., dated February 23, 1910. Mr. Shepard is recognized as probably the highest authority in the northwestern States. He says:

Everybody seems to be satisfied with the Lafean bill in the Northwest except the one clause about the size of the box.

In addition to that we have the indorsements of many horticultural associations, which I will submit as they have come into my hands. Many communications from these associations have also reached the hands of this committee, I believe; I have no knowledge how many.

In addition to these, and as indicating the feeling of the retailer, I will submit to you some resolutions adopted by the Retail Merchants' Association of Illinois at a convention held in the city of Cairo within the last few weeks. This association is made up of 160

other smaller associations of retail merchants within the State of Illinois. To give you some idea of the magnitude of that organization in the State, I would say I am advised that their membership in two alone of those 160 associations within the State of Illinois amounts to 9,000 retail merchants, or approximately that number. They have petitioned your committee that you report this bill favorably. In fact, wherever we have gone we have met with absolutely the same reception. I believe, gentlemen, that this practically covers what I wanted to say to you. I simply want to impress upon you that we have been fair in all that we have attempted to do; we have consulted absolutely all interests, we have invited their participation, we have met every desire in so far as it could be met, and the bill as we ask you to report it is the result, the concrete result, of a conference of absolutely all connected with the industry in this country, including even consumers' organizations. I thank you.

The CHAIRMAN. If you will be kind enough to answer a few questions, I think you can give the committee some information that it would be interested in having. My understanding is that the box provided for in Mr. Lafean's bill is larger in cubic contents than the boxes that are used in Oregon and Washington, and, perhaps, in California?

Mr. WAGNER. Yes, sir.

The CHAIRMAN. What guided your committee in the determination of the size of box which it should recommend?

Mr. WAGNER. We sought to establish three packages for apples that would represent aliquot parts of one another, taking the old recognized standard. The Government of the United States has not at any time designated what shall constitute a bushel for commodities of this character. We found that the only bushel as recognized by this Government is the old Winchester bushel, dating from the time of Henry VII, which was brought into our system here from the old English law—that is, the Winchester bushel of 2,150.4 cubic inches. In 1826 England abandoned it, adopting her imperial bushel of some 2,218 cubic inches. The Winchester bushel Webster defines as follows:

A dry measure containing 8 gallons or 4 pecks. The Winchester bushel, used in England from the time of Henry VII to the year 1826, contains 8 gallons of wheat; each gallon, 8 pounds of wheat, troy weight; the pound, 12 ounces troy; the ounce, 20 sterlings, and the sterling, 32 grains of wheat growing in the middle of the ear. The contents are 2,150.42 solid inches, equivalent to 1,131 ounces and 14 pennyweights troy.

We were not content to adopt a bushel or any measure of that character that was based upon troy weight; and when you come to take 32 grains of wheat growing in the center of the ear, that appears to us ridiculous. Custom all over this country has demanded that this class of goods shall be sold by heaped measure. In two of our States, New York and Michigan, this has been provided for, and if you will permit me I will read from section 6, page 1176, volume 2 of the consolidated laws of New York:

Heap measure.—The measure of capacity for all commodities commonly sold by heap measure shall be the half bushel and its multiple or subdivisions. The measure used to measure such commodities shall be cylindrical, with plain and even bottom, and of the diameter of $19\frac{1}{2}$ inches from outside to outside of the bushel; $15\frac{1}{2}$ inches if a half bushel, and $12\frac{1}{2}$ inches if a peck.

All commodities sold by heap measure shall be duly heaped up in the form of a cone, the outside of the measure to be the limit of the base of the cone, and the cone to be heaped as high as the commodities will admit.

Section 4899 of the laws of Michigan reads:

The half bushel and parts thereof shall be the standard measure for fruits and other commodities customarily sold by heaped measure; and in measuring such a commodity the half bushel or other smaller measure shall be heaped as high as may be without special effort or design.

It being the custom to sell by heaped measure, we found it necessary to have such packages as would measure out 12 heaped pecks, or whatever the capacity might be. The barrel described in this bill, which represents the old standard New York barrel, will do that. In arriving at what the other packages should be, we divided the barrel into three parts.

Mr. HAWLEY. There is no place in the world where a box of the cubic contents you prescribe is used, is there? It is an entirely new package.

Mr. WAGNER. There is not now, but there will be in twelve months. Millions of boxes have been ordered on these dimensions, covering the States of Colorado, New Mexico, and California. We divided the barrel into three parts, measuring some 2,600 cubic inches each. In a sense what we did there was a compromise, because of the fact that, the box being square in its form, it does not pack a round article to the same advantage that a round package does, and there is a loss in the right angles; but a box properly packed, with a proper "bulge," as we term it, will meet the requirements of the measure. That was the manner in which we arrived at the cubic dimensions there specified.

Mr. HAWLEY. An arbitrary division?

Mr. WAGNER. As any figures must be arbitrary.

Mr. CHAPMAN. Not necessarily arbitrary, as I understand. The added cubic inches to that bushel box are intended to compensate for the heaping of the Winchester bushel. Is that right?

Mr. WAGNER. Yes, sir.

Mr. STANLEY. It is arbitrary, as I understand it, in the sense that it is fixed by consensus of opinion and not by any mathematical calculation; but it is an equitable arrangement by which the box and the barrel and the basket all contain practically the same customary bushel.

Mr. WAGNER. Yes; that is the idea exactly.

The CHAIRMAN. Is it true or not that the barrel is rapidly passing out as a package for apples?

Mr. WAGNER. It is not at all true, sir; not at all true. As indicated in what I said a short time ago, the box sections during this past year produced, I would say, approximately, computed in barrels, which has been the customary way of our computation, in order to make the comparison plainer, 2,000,000 to 2,500,000 barrels, out of a total of about 26,000,000. I have not those figures before me, but that is right, approximately. The use of the box has grown, because it has been adopted in certain sections. The use of the barrel has not decreased; but as the production increases in the barrel sections, the use of the barrel increases with it. The barrel sections have not adopted the box to any appreciable extent.

The CHAIRMAN. Is not the box preferable as a package? Can you not handle it more readily, and does it not pack in a car or in the hold of a vessel with greater economy?

Mr. WAGNER. Not to any great extent, I would say; possibly with a little greater economy. But when you exercise that economy you are destroying your ventilation, which is an absolute essential, so that if you space your boxes as you should space them you have lost that economical feature.

The CHAIRMAN. I have a letter before me from a fruit grower in California protesting against the passage of this bill, and one of his objections to it is that the box provided for would pack to less advantage in steamers than the box they are using in California. He says:

Our own box, with an inside measurement of 9½ inches by 11 by 20½, contains 2,225 cubic inches, which is slightly larger than the minimum indorsed by the northwest apple growers, and makes a box very nearly twice as long as wide, which we are told by our Australian buyers, who, by the way, are large consumers of our Gravenstein apples, for which Sonoma County is becoming famous, packs to the best advantage in a steamer of any style of box they can get; in fact, they can put 22 boxes of our style in the same space that is required for 18 of the Oregon and Washington box. This one item alone will be a very important matter when, a few years hence, we can utilize the Panama Canal.

What answer would you make to that complaint?

Mr. WAGNER. As a handler of box apples from every section of the United States, I have seen carload after carload of them in their loaded condition. They have been using boxes, from the box territory, of as many dimensions as could well be conceived, no two sections, regardless of statements made, adhering strictly to the same size, and many sections using more than one size among themselves. They have all been loaded and carried in cars in perfect condition, regardless of size, and I believe, while I have no experience with shipping on a steamer, that they must do the same thing there. In answer to the gentleman from California, I would say that the Watsonville district, which is practically the apple-producing section of California, loading this past year some 2,850 carloads, more than all the northwestern box States combined—all of the other box States excepting Colorado—under a misapprehension of the facts had argued against us, and passed resolutions against us, but on March 1 they rescinded that action, and they now are a unit in indorsing this bill.

The CHAIRMAN. I have also here a letter, signed by a number of produce companies, on the letter head of the Memphis branch of the National League of Commission Merchants of the United States, dated Memphis, Tenn., February 19, 1910, in which this statement is made:

Referring specially to the Lafean bill (H. R. 16919), which has been introduced in the House, we have no objection to that feature of it which refers to uniformity in barrels and boxes, but we do object seriously to the grading feature. We contend that there should be two grades for commercial apples, one for No. 1 or fancy apples, and the other No. 2 or choice apples. There is a good demand all over the country for No. 2 or choice apples by a class of trade and consumers who can not afford to handle No. 1 or fancy fruit and to blacklist or boycott them by striking them off the commercial list by legislative enactment would result in injury to the trade as well as the growers, as it would greatly limit consumption of this popular fruit. We hold that it would be just as fair to eliminate No. 2 wheat or No. 2 corn commercially from the grain trade, as to kill the sale of No. 2 apples by enacting a law that provides only for a No. 1 grade as a commercial standard.

What answer would you make to that?

Mr. WAGNER. We are attempting to create a standard which shall be a standard for apples as No. 1 wheat is the standard for wheat.

No. 2 is not a standard; it is No. 2 by comparison with the standard. Just so with the apple. There is nothing in this bill that prevents a man from packing and marketing his No. 2 apples as he pleases; we are simply establishing what shall be a standard. Anything less than the standard is No. 2 or No. 3 or No. 4, or whatever it may be. I would say, further, that these gentlemen at Memphis wrote that letter under a misapprehension of the facts, and they have since asked its withdrawal, whether from the chairman of this committee or not I do not know. It was sent to the trade press, and telegrams were sent requesting its withdrawal, and we hold their indorsement.

The CHAIRMAN. Are there any further questions? If not, I think that is all.

Mr. LAFEAN. Mr. Chairman, I will introduce to you next Mr. Bahrenburg, representing the National League of Commission Merchants.

**TESTIMONY OF MR. WILLIAM H. BAHRENBURG, OF NEW YORK,
REPRESENTING THE NATIONAL LEAGUE OF COMMISSION
MERCHANTS.**

(The witness was sworn by the chairman.)

Mr. BAHRENBURG. Mr. Chairman, the National League of Commission Merchants is composed of about 400 members in 29 of the large cities between the Atlantic coast and the Rocky Mountains. The trade dealt in and represented by the National League of Commission Merchants is about one-third of the annual commercial wealth of this country. The league is interested in the handling of apples in the way of standing between the grower and the buyer of apples, and turning them over to the jobber, the retailer and the consumer, and therefore our league favors the Lafean bill, which will give all interested, from the grower to the consumer, a square deal.

Now, a few remarks on the export trade. I have some letters here, portions of which I will read you. First, I have here a letter from Messrs. Symons, Shuttleworth & Co., of Liverpool, England, who are very heavy importers of apples into their country. They say:

What does interest us, however, is that the box shall be the equivalent of one-third of a barrel. The latter is the standard package here, and you can understand the present status of the box when we tell you that buyers reckon it all the way from "three and a bit" to four boxes to the barrel. Naturally a law which would establish when a box was a full third of a barrel, and when it was short of that, would clear the air, and would tend to place the box trade on a broader and more satisfactory basis.

I also have some figures or percentages here, and if you will follow me in these percentages, you will notice where Canada is running up in their export trade, and the United States, by reason of their careless packing of fruit, is going down in exports. In the year 1880-81 Canada only exported 13 per cent and the United States 87 per cent of the apples that went over. In 1886-87, 25 per cent was shipped from Canada and 75 per cent from the United States. In the season of 1889-90, 30 per cent went from Canada and 70 per cent from the United States. In the season of 1895-96, 40 per cent went from Canada and 60 per cent from the United States.

In 1900-1901, 33 per cent went from Canada and 67 per cent from the United States. In the season of 1903-4, 40 per cent went from Canada and 60 per cent from the United States. In 1904-5, 31 per

cent went from Canada and 69 per cent from the United States. In 1905-6, 41 per cent went from Canada and 59 per cent from the United States. In 1906-7, 32 per cent went from Canada and 68 per cent from the United States. Now, we are getting close to the present time. In 1907-8, 46 per cent went from Canada and 54 per cent from the United States. Now, then, gentlemen, last year, in 1908-9, 58 per cent went from Canada and 42 per cent from the United States. In Canada they have a standard grade; they give the people a square deal.

Mr. HOWELL. What is the standard of Canada?

Mr. BAHRENBURG. They have three grades, 1X, 2X, and 3X. Their high grade, 3X, is based, I believe, on about the same percentage as we are trying to get in the Lafean bill; at least the whole quantity, with the exception of about 10 per cent, must be sound apples, 2½ inches and up, I believe.

Mr. HOWELL. What kind of a box do they use?

Mr. BAHRENBURG. I do not think the box question comes up there very much. I am not positive about that.

Mr. COCKS. What kind of a barrel do they use?

Mr. BAHRENBURG. I think it is about the same, if not a trifle larger than the one we want. I am not positive on that.

I have here also a letter from the firm of Ph. Astheimer & Sohn, Hamburg, Germany, the largest buyers of apples from our country into the Hamburg market. I will just read you one extract from this letter:

Grading: In our opinion it is absolutely necessary to have a law which would define No. 1 and No. 2 apples. Since some years the distrust against false grading has become so great here, that trade is suffering immensely, and if no measures are being adopted to prevent false grading the American apple will lose a great deal of its reputation.

Mr. LAFEAN. Mr. Chairman, I think you asked a question a moment ago, reading from a communication from that California association to the effect that the steamship companies preferred to handle apples in boxes rather than in barrels for shipping on board steamers.

The CHAIRMAN. The statement was that the boxes packed to better advantage, of the size used in California, than the proposed box would pack.

Mr. BAHRENBURG. Only about two weeks ago I had a question up with the Hamburg-American Line going to Hamburg, with reference to a rate on box apples, and I could not see any reason why they should not give us a freight rate that would be equal to the rate on barrels, figuring it on a basis of about 3½ boxes to a barrel, although in a great many instances it takes very nearly 4 boxes to make a barrel. They said that it was more expensive to handle boxes than it was to handle barrels; that is, taking 3 or 3½ to the barrel.

Mr. POINDEXTER. I would like to ask, if the committee will permit me, just one or two questions of this witness while he is here.

The CHAIRMAN. Very good, Mr. Poindexter.

Mr. POINDEXTER. Do the Canadians ship their apples in boxes or in barrels?

Mr. BAHRENBURG. I think mostly in barrels.

Mr. POINDEXTER. To what do you attribute this increase, this gain, in Canadian exporting of apples over that of the United States?

Mr. BAHRENBURG. To their advance.

Mr. POINDEXTER. To their advance in what respect?

Mr. BAHRENBURG. The high standard of their goods.

Mr. POINDEXTER. You do not attribute it in any way to the size of the boxes in these countries?

Mr. BAHRENBURG. In Canada the box does not enter into the question. They do not handle apples in boxes there.

Mr. POINDEXTER. In speaking of the objections that foreign importers of our apples make to a low standard, has there been any complaint from that source, or any other important apple-buying source, of a grade or quality of the apples that are packed in the Pacific coast boxes?

Mr. BAHRENBURG. We have occasionally some complaint in New York City, but I have not heard so much from foreign countries.

Mr. POINDEXTER. You have not heard any from foreign countries?

Mr. BAHRENBURG. Not so much; not as to grading.

Mr. POINDEXTER. Do you know of any case where there has been as much as 10 per cent of defective apples in these boxes, that has attracted the attention of the trade?

Mr. BAHRENBURG. I can not say that I remember any specific case.

Mr. RUCKER. You gave us the percentage of shipments from Canada as compared with the shipments from the United States, showing a rapid increase in shipments from Canada and a corresponding decrease in our shipments from the United States?

Mr. BAHRENBURG. Yes.

Mr. RUCKER. Does that apply to the total volume shipped or does it simply show that Canada is making increases or inroads?

Mr. BAHRENBURG. That is the total volume of exports of apples.

Mr. RUCKER. So that the United States export, then, is falling off?

Mr. BAHRENBURG. Yes.

Mr. RUCKER. Going down?

Mr. BAHRENBURG. Yes.

The CHAIRMAN. Do you think that the increased local consumption in the United States has anything to do with that?

Mr. BAHRENBURG. No; I do not, as the exports depend entirely upon the size of the crop.

Mr. HAWLEY. There has been no portion of our crop remaining unsold either in the foreign market or in the home market?

Mr. BAHRENBURG. No; I think not.

Mr. LAFEAN. I would like to ask the gentleman a question.

The CHAIRMAN. Mr. Lafean.

Mr. LAFEAN. Is not the increase in the Canadian shipments due largely to the Canadian fruit-market act.

Mr. BAHRENBURG. It is; sure.

Mr. HAUGEN. Do you attribute it to that entirely?

Mr. BAHRENBURG. Yes; that is so.

Mr. HAUGEN. Is it not a fact that the apple trade is increasing in Canada, just as the trade along all other agricultural lines in Canada is increasing at the present time?

Mr. BAHRENBURG. Yes, and in this country.

Mr. HAUGEN. Has it been increasing there and falling off in this country?

Mr. BAHRENBURG. Yes.

Mr. HAUGEN. Increasing?

Mr. BAHRENBURG. Yes, sir; increasing.

Mr. RUCKER. I understood you to say that the reason of our falling off in the export apple trade was because of the falling off in the crop.

Mr. BAHRENBURG. Oh, no, sir; I said that the exports are based upon the size of the crop. The figures giving the number of the barrels vary from year to year. One year we may only ship a million barrels, and the next year we will ship 2,000,000 barrels; but the percentage, and whether it comes from Canada or the United States, varies.

Mr. HAUGEN. Has there been a shortage in the crop of apples in recent years, especially in the East?

Mr. RUCKER. Almost a total failure in some places?

Mr. BAHRENBURG. I would like to have our statistician, Mr. Rothwell, answer that question.

Mr. STANLEY. Does it not sometimes occur that, the apple region in Canada being larger than the apple region in this country, you have a favorable season in Canada and an unfavorable season here, and the larger crop in Canada affects the percentage seriously; or is a bad crop year here a bad crop year there, usually?

Mr. BAHRENBURG. I think you can compare the production of New York State, one of the very large apple-producing States, very favorably with the production of Canada; but Mr. Rothwell, who is the statistician for the International Apple Shippers' Association, could give you that much better than I could.

Mr. HOWELL. Did the figures which you gave, of exportation to Canada, include exportation from Canada to the United States?

Mr. BAHRENBURG. Yes, sir; I have here the percentage, also.

Mr. HOWELL. What was the amount of exportation from Canada into the United States?

Mr. BAHRENBURG. Very little. Still, there are some apples that do come from Canada into the United States, and they always bring a premium over our own apples.

Mr. HAWLEY. When you say the Canadian apples bring a premium over the American apples—

Mr. BAHRENBURG. I am putting them on the basis of barrels.

Mr. HAWLEY (continuing). To what apples do you refer; coming from what section?

Mr. BAHRENBURG. From the barrel sections.

Mr. RUCKER. What, in your opinion, would be the effect of such a law as this proposed here, with reference to the grower of apples, with reference to the price that he would get for his crop? Would it influence that one way or another?

Mr. BAHRENBURG. He would be very greatly benefited, as I think you will agree when Mr. Hale addresses you later on. Mr. Hale has had experience in using the standard barrel already this season.

Mr. RUCKER. The man who produces and grades the apple would be benefited by this law?

Mr. BAHRENBURG. Yes.

Mr. RUCKER. Has any effort been made to get expressions from those people who grow apples?

Mr. BAHRENBURG. Yes; they will be here and talk to you.

Mr. STANLEY. What is the difference in the price of the same grade of apples in this country and in Canada?

Mr. BAHRENBURG. Taking, for instance, the Spy apple, taking a carload of Canadian Spies on any of our markets alongside of a carload of New York State Spies, I think you would find there would easily be a difference, theirs being packed under their 3-X standard and ours ordinary grade.

Mr. STANLEY. In favor of the Canadian apple?

Mr. BAHRENBURG. Yes, sir.

Mr. STANLEY. You did not catch my question. What is the difference between the price of apples in Canada and in the United States?

Mr. BAHRENBURG. At the producing points?

Mr. STANLEY. Yes.

Mr. BAHRENBURG. I am not in a position to answer that question.

Mr. STANLEY. Are they cheaper or higher?

The CHAIRMAN. The witness has stated that he is not in a position to answer.

Mr. BAHRENBURG. I think they are about equal; I would think they are about on a par.

Mr. POINDEXTER. I understood you to say that between the best Canadian Spies and the New York Spies there would be a difference of \$1 a box?

Mr. BAHRENBURG. A barrel; putting a carload of Canadian Spy barrel apples alongside of a carload of New York State barrel Spies.

Mr. POINDEXTER. You have the standard already existing in New York, or in common use, which you are contending for here, have you not?

Mr. BAHRENBURG. No, sir; not on standard grades. We have on the size of package.

Mr. POINDEXTER. I am speaking of the size of the package.

Mr. BAHRENBURG. Yes.

Mr. POINDEXTER. So that this difference in the price against the New York apple is not due to the size of the package?

Mr. BAHRENBURG. No, sir; it is on account of the grade.

Mr. STANLEY. Is the New York apple inherently as good and presentable an apple in the market, in all ways, as the Canadian apple of the same size? Is there any difference in the quality of the apples that makes the Canadian apple sell better?

Mr. BAHRENBURG. I do not think there is any difference so far as flavor goes; it is just in the apples. That is, they have 90 per cent good apples in the barrel, and in the New York State barrel they can put 10 per cent of good apples only, by facing the top and bottom, and the other 90 per cent in that barrel will be any kind they are a mind to put in.

Mr. STANLEY. Then it is in the grading and not in the apple itself?

Mr. BAHRENBURG. Certainly it is in the grading.

Mr. STANLEY. In quality and flavor are they similar?

Mr. BAHRENBURG. Yes, sir.

Mr. STANLEY. Do your orchards in New York State produce as fine a quality of apple as the orchards in Canada?

Mr. BAHRENBURG. They are equal to any apples in the world.

Mr. STANLEY. I was under the impression that perhaps they produced a finer-flavored apple. If I am not mistaken, the orchards around Aurora ship their apples to the King of England. I think the King of England buys his apples from New York State.

Mr. BAHRENBURG. That might be. As far as growing quality is concerned, for the kind, we can get as good apples there as anywhere. In fact, the whole United States can not be beaten for growing apples; all they need is to put them up right.

Mr. HAWLEY. In your experience how have you found the box packages? Do not the apples retain all their good qualities in the box packages?

Mr. BAHRENBURG. We have nothing against the quality of the western product. It is fine.

Mr. HAWLEY. As good as you have in the barrel?

Mr. BAHRENBURG. The box people put up their apples right, that is, as far as the grades go. They can not be beaten. But to my mind the trouble with the western people is that they think they are going to give something for which they are not to get a return, and that is in the size of the box. Now take, for instance, a box of apples that packs 96 to the box, and you take our Lafean standard box, and I do not know exactly what the difference would be, but we will say that that same 96 apples will pack about 106 or 108 apples in the Lafean box. You take a carload of the Winchester bushel or the box that they are using in the northwest now, and put a carload of the Lafean box apples alongside of it, and the consumer will be willing to pay more for the Lafean box apples.

Mr. HAWLEY. We have some opinions on that.

The CHAIRMAN. I would like to ask one or two questions. Is it true that the State of Oregon, for example, has established a reputation for its apples packed in the boxes that are customary there, so that when a dealer orders a number of boxes of apples from an Oregon grower, he knows just how many apples he is going to get?

Mr. BAHRENBURG. If he gets a Lafean standard box—

The CHAIRMAN. But, excuse me, I am talking about conditions as they exist now. If you, as a dealer in apples, place an order with an Oregon grower or an Oregon firm of apple dealers for 100 boxes of Oregon apples, do you know how many apples you are going to get, or when they come do you find that you have been deceived, and that you have gotten fewer than you expected?

Mr. BAHRENBURG. No; I know exactly how many apples I am going to get. In Oregon they generally pack according to count, I believe.

The CHAIRMAN. Then, using Oregon as an illustration, if Oregon has established a reputation for its apples packed in a box of a given size, so that the purchasers of those apples are not defrauded, but get the quantity that they expect to get, and if the law should now come in and require the Oregon dealers to pack their fruit in a larger box, do you think they would be able to get any more for the new box than they now get for the present box?

Mr. BAHRENBURG. I positively do. I believe they will get more money for their apples at the end of the line; and at the producing end of the line they will make money by not having to pay any more for packing the larger quantity. I do not believe they will have to pay a cent more for the extra size of the box, and I do not believe they will have to pay any more freight. It looks to me like they are standing in their own light when they talk against the Lafean box.

The CHAIRMAN. I asked that question because it is evident from letters that have been received here that growers in those sections

where a box smaller than the one provided in this bill has become customary, fear that if this bill becomes a law they will be required to accept the same price for the larger quantity of apples which they now get for the smaller quantity, and be defrauded to that extent.

Mr. BAHRENBURG. I wish we could get a carload of this kind of apples packed in the Lafean box, on the market, so as to show that they would bring more. I feel absolutely confident that we would get more money for the larger sized box put alongside of the others, car for car, the one alongside of the other.

The CHAIRMAN. You think that the condition which prevails as to strawberries, then, would not apply as to apples? It has been a pretty general experience among retail purchasers of strawberries, that a box is a box, although boxes frequently differ, like stars, in magnitude and glory.

Mr. BAHRENBURG. Well——

The CHAIRMAN. And in that connection I would like to ask whether the members of the association you represent handle strawberries and plums and other kinds of fruits?

Mr. BAHRENBURG. They do.

The CHAIRMAN. What is the reason why this movement has been started for apples alone? Why is it not just as necessary to have standardization of boxes in which pears or peaches or apricots or strawberries are packed, as it is to have standardization of the boxes in which apples are packed?

Mr. BAHRENBURG. I believe, Mr. Chairman, we have got a terribly big job on our hands right now in the boxes for the apple industry alone.

The CHAIRMAN. It is not because it is not desirable to have standardization elsewhere, but you did not want to undertake too big a contract at one time?

Mr. BAHRENBURG. Yes, sir.

Mr. CHAPMAN. Apples are kept in cold storage, and these other goods are perishable, and are sold immediately.

Mr. HAWLEY. Pears are kept in storage.

Mr. BAHRENBURG. I did not catch your question.

Mr. CHAPMAN. Is it not a fact that apples are kept in cold storage and are carried over from season to season, while strawberries are sold immediately?

Mr. BAHRENBURG. Strawberries are of course sold immediately upon arrival; but a great many improvements can be made in that line. But on the apple proposition, you say they are kept from season to season in cold storage; apples are put in cold storage in the fall of the year, and they are always disposed of before the season is over; if not, somebody is losing money somewhere.

Mr. CHAPMAN. How many Oregon boxes does it take to make a barrel now?

Mr. BAHRENBURG. About three and a half. In the communication from which I read, from Simons, Shuttleworth & Co., they claim the retail dealers figure that they have in some instances to take four boxes to make a barrel.

Mr. STANLEY. Do apples of the same size vary materially in weight?

Mr. BAHRENBURG. According to the kind; yes, sir.

Mr. STANLEY. Then a standard weight would not be practical?

Mr. BAHRENBURG. No, sir; I do not think weight could be figured

Mr. HAWLEY. I want to ask just a few questions of the witness. I am very much impressed with his sincerity, but we will take issue with him a little later on the question of price, and his statement of a moment ago regarding the number of boxes, of the Oregon size, in the barrel. I figure it out that it takes about three and a quarter of the very smallest sized boxes we use.

Mr. BAHRENBURG. We can give you a practical illustration if you want it.

Mr. HAWLEY. We will have some practical illustrations of our own.

The CHAIRMAN. Are there any further questions?

Mr. HAWLEY. The witness does not say that any Oregon box contains less in cubic contents than 2,173.5 cubic inches.

Mr. BAHRENBURG. How is that?

Mr. HAWLEY. That the smallest Oregon box contains less than 2,173.5 cubic inches.

Mr. BAHRENBURG. I do not want to go into the cubic inch end of it.

Mr. HAWLEY. As a matter of fact it does—the Northwest box?

Mr. BAHRENBURG. It contains 2,172?

Mr. HAWLEY. 2,173.5?

Mr. BAHRENBURG. Yes. .

Mr. HAWLEY. And that into your barrel goes three and a quarter times. That is the smallest box we use.

Mr. BAHRENBURG. Taking it from a practical standpoint, and taking the boxes and placing them into the barrels, they will go three and a half. You take a barrel and shake it down properly, and it will go three and a half.

Mr. HAWLEY. You mean to say that it will take three and a half boxes every time, to fill a barrel? As we pack them in the West, in tiers, the boxes will contain fewer apples than your New York barrel?

Mr. BAHRENBURG. I am sure, packing them as you pack at the present time, and filling the barrel as we fill it in the orchard, it will take three and a half boxes to make a barrel.

Mr. HAWLEY. I think the gentleman is in error.

Mr. BAHRENBURG. I have tried it.

Mr. HAUGEN. If this bill should become a law, there would be nothing to hinder the apple grower of Oregon from using the box that he is now using?

Mr. BAHRENBURG. No, sir.

Mr. HAUGEN. All that is necessary is that he should mark that box with the number of inches it contains.

Mr. HAWLEY. That is not a fair statement, that we could use the same box we are now using; because this box would have to be stamped "short box," as if it was fraudulent.

Mr. HAUGEN. It would not have to be stamped "short box."

Mr. HAWLEY. Yes, according to the bill.

Mr. HAUGEN. It would have to be stamped "short box" or it would have to be stamped with the number of inches the box actually contained.

Mr. HAWLEY. Yes. Well, that is the same thing.

Mr. HAUGEN. It would have to be stamped "short box," or you would have to give the number of inches.

Mr. HAWLEY. It has got to contain something like that, which would indicate to the public that it is not a full package, and that it is an attempt to defraud.

Mr. BEALL. Suppose you ordered 100 boxes of apples from California and 100 from Colorado and 100 from Oregon and 100 from Utah; would all the boxes be the same size?

Mr. BAHRENBURG. No, sir.

Mr. BEALL. To what extent would there be a variance?

Mr. BAHRENBURG. The Colorado people at the present time are packing apples in a box that is a trifle larger than the Lafean box. I am not sure as to Utah, but California and the Northwest are packing in a box that is in less dimensions than a Lafean standard box.

Mr. BEALL. Suppose that a wholesaler had on hand a number of these boxes, and a retailer wanted to order apples from him; would it be necessary for him to designate in his order the particular kind of boxes he wanted?

Mr. BAHRENBURG. He does that, as a rule. He knows what section they come from.

Mr. BEALL. If a wholesaler had the different sized boxes and the retailer simply ordered 100 boxes of apples from him, what kind of box would the retailer most likely get?

Mr. BAHRENBURG. The wholesaler would ask the retailer what kind he wanted; whether he wanted an Oregon apple, and what variety of Oregon apple he wanted, and what sized apple he wanted, or whether he wanted a California or a Colorado apple, as the case might be. In the first place, the retailer would probably ask him if he had the Ben Davis or Newtown, so as to get at the variety.

Mr. BEALL. Take as an illustration the Ben Davis; are Ben Davis apples packed in these different sized boxes?

Mr. BAHRENBURG. Yes; from all these States.

Mr. BEALL. If he simply ordered 100 boxes of apples, the chances are that he would get 100 of the smaller boxes?

Mr. BAHRENBURG. If he knew his business, he would state just what kind of apples he wanted and just what section he wanted them from.

Mr. BEALL. Does this difference in the size of the box cause any confusion in the trade?

Mr. BAHRENBURG. No; there are different classes of trade that use the different apples.

Mr. BEALL. Now, take one of your New York growers who packs in barrels. I understood from you that he puts a better grade of apples on the bottom layer and on the top layer?

Mr. BAHRENBURG. Yes.

Mr. BEALL. And smaller apples in between?

Mr. BAHRENBURG. In some instances. I will say for them that there are a number of honest packers in New York State who put their apples up right; and whenever they do put their apples up right they get paid for it.

Mr. RUCKER. They put up a smaller number, I suppose.

Mr. BAHRENBURG. Yes.

Mr. BEALL. You take an apple grower in New York, and he raises different sized apples. Some of them would be No. 1 apples under this bill?

Mr. BAHRENBURG. Yes.

Mr. BEALL. And some of them offgrades?

Mr. BAHRENBURG. Yes.

Mr. BEALL. There would still be a market for those offgrades?

Mr. BAHRENBURG. Absolutely.

Mr. BEALL. After the passage of this bill?

Mr. BAHRENBURG. Yes.

Mr. BEALL. After the passage of this bill there would be a market for them?

Mr. BAHRENBURG. Yes; a big market.

Mr. BEALL. If he packed in a barrel apples all of a like grade he would get a better price for that barrel of apples than he gets now?

Mr. BAHRENBURG. He certainly would.

Mr. BEALL. Suppose that he was compelled to assort and put in this barrel apples of grade No. 1, and so on down the line, would he, in your judgment, receive any less for his crop of apples containing the different grades, after the passage of this bill, than he now receives under a system where they are all mixed up together?

Mr. BAHRENBURG. If you will allow me to take up just enough time to give you an illustration on a bushel of potatoes that a man is trying to sell to a retail customer, I think that it may explain this question. A man comes up to a woman and he wants to sell her a bushel of potatoes. She looks at the potatoes and she says "I want potatoes, but I want big potatoes, and I do not want little ones." He says, "Well, all right; I will sort them out for you." "All right, then I will take your bushel of potatoes." He sorts out that bushel of potatoes and makes a bushel of big ones, and he has got all his little ones left. I think the same would apply to apples.

Mr. BEALL. He would get a larger price for the barrel of No. 1 apples?

Mr. BAHRENBURG. Yes; he would get a larger price; and a great many of the small apples, that just fill up space, he will have those left over besides.

Mr. BEALL. And he will possibly get a smaller price per barrel for the apples that are under the grade; but when the entire crop is sized up, in your judgment, the producer will get no less for his crop than he gets now?

Mr. BAHRENBURG. He will be way ahead of the proposition as he stands to-day; that is, he will be way ahead by using the Lafean standard.

Mr. LAFEAN. I would like to ask the gentleman one question, to bring him back and clear up something that has possibly been left in a confused condition.

Would it not be possible that the American grower would get as much for his apples in competition with the Canadian, all things being equal, that is, the size of the package and the grading of the fruit; would not the American grower get just as much for his apples as the Canadian grower would get under those conditions?

Mr. BAHRENBURG. The American grower would get as much, if not more.

Mr. LAFEAN. That is the point that I wanted to clear up.

The CHAIRMAN. In that connection I would like to ask which, in your judgment, is the most important part of this bill, the part standardizing the packages or the part providing for the grading of the apples?

Mr. BAHRENBURG. It all works together. I believe one part is just as important as the other.

Mr. POINDEXTER. Do you think that it is advisable, either from the standpoint of business or from the standpoint of morals, for the Government, by the passage of a bill of this kind, to allow growers to put on the market apples which are marked under the government legislation as being practically perfect, when 10 per cent of them by authority of this act would be absolutely defective? Out of 100 carloads of apples 10 entire carloads, or an amount equal to 10 entire carloads, might by authority of the law be defective.

Mr. BAHRENBURG. This bill is the result of the conference held last January a year ago, at which all the different interests were represented.

Mr. STANLEY. May I ask Mr. Poindexter a question?

Mr. POINDEXTER. Yes, sir.

Mr. STANLEY. Would you favor this bill if that provision was cut out?

Mr. POINDEXTER. No; I would not, because the growers of the Northwest have developed the industry in the Northwest upon a certain-sized box, and they have developed a system of packing which no one has objected to. I have asked the question of some of these witnesses if anyone objected either to the quality of the apples or the manner in which they were packed. It would cause great loss and great injury to our people to have to readjust the apple industry of the Northwest to a new kind of box.

Mr. HAWLEY. That is not the only objectionable feature of the thing.

Mr. POINDEXTER. No.

Mr. CHAPMAN. Is not the bushel the standard of measure of the apple in the market, and are not these boxes which are used in Colorado and California and Oregon and all this northwestern and western country made to hold a bushel, or is not that what the public understands?

Mr. BAHRENBURG. Yes; that is what the public understands, that it is supposed to be a bushel.

Mr. CHAPMAN. Then if you buy an Oregon box of apples you get fewer apples than when you buy a Colorado box, and when you buy a box of California apples—

Mr. BAHRENBURG. You get less.

Mr. CHAPMAN. You get less?

Mr. BAHRENBURG. Yes.

Mr. HAWLEY. Are they not sold as boxes?

Mr. BAHRENBURG. Yes.

Mr. HAWLEY. And never sold as bushel boxes? They are not so listed in your invoices?

Mr. BAHRENBURG. No, sir.

Mr. STANLEY. Is your estimate of the relation between the contents of $3\frac{1}{2}$ boxes and of a barrel based upon theory or on the practical experience of turning these boxes into barrels?

Mr. BAHRENBURG. Upon practical experience.

The CHAIRMAN. Are there any further questions? If not, I think that is all.

Mr. LAFFAN. Mr. Chairman, I would like to make a statement in reply to the question asked by the gentleman from Washington. He says that he objects to this measure on account of its inconven-

encing the people of the Northwest, they having adopted a certain package. I want to inform him that since the passage of the pure-food act there is not a manufacturer putting up a food product, I suppose, who was not compelled to change his package.

Mr. POINDEXTER. I would like to say right now, in reply to that, that the two propositions are on entirely different bases. We are opposed to this bill on the ground that there is no demand for justice, and there is no deception of the public here that will be prevented by the bill, as there was in the case of the pure-food law. They are not similar at all.

Mr. LAFEAN. I would like to ask the gentleman whether it is not deception to face the top and the bottom of a barrel with nice, big, juicy, red apples, and then fill in the center with little bits of ones?

The CHAIRMAN. Wait a minute. This would be a very proper discussion on the floor of the House, but the committee is anxious to get information. The House is in session to-day, and it is Calendar Wednesday, and the members of the committee are anxious to be on the floor. If you gentlemen who are here can remain over until to-morrow morning, the committee would be glad to go on with the hearing at that time, but we do not care to remain in session any longer to-day if it can be avoided without serious inconvenience. If there is any gentleman here who is unable to remain over until to-morrow and desires to make a brief statement, we will hear him.

Mr. LAFEAN. It seems that the gentlemen here who are favorable to the passage of the bill are all willing to remain until to-morrow, excepting Mr. Hale. Would it be asking too much to ask the committee to hear him for a few minutes?

The CHAIRMAN. Well, we will hear Mr. Hale for a few minutes.

Mr. LAFEAN. I will ask Mr. Hale, of Hartford, Conn., who represents the Fruit Growers' Association and the Connecticut State Board of Trade, to address you.

TESTIMONY OF MR. J. H. HALE, OF HARTFORD, CONN.

(The witness was sworn by the chairman.)

Mr. HALE. Mr. Chairman and gentlemen, I want to speak very briefly as a member of the Connecticut State Pomological Society, a society of something over 700 fruit growers who are interested in the growing of apples to a greater or less extent, and nearly all of whom are increasing their orchards or are planning to do so in the very near future. I also want to speak, as chairman of the executive committee of the Connecticut State Grange, for some 13,000 farmers who are more or less interested in the apple industry as producers.

I have also been requested by the Connecticut State Board of Trade, made up of trade organizations of all the cities and large towns of our State, and representing fully 65 per cent of the consumers in our State, all of whom are heartily in favor of this bill, to speak for them; the growers because they believe that it will help the sale of their apples to have them standardized so that the buyers in all parts of this country or of the world who want their apples may know what they are getting, and the consumers because they have been woefully wronged in the past and have never been quite sure what they were getting in quantity or quality. They are interested in the passage of this bill for that particular reason.

Mr. HAWLEY. Does that remark relate to the barrel or the box package?

Mr. HALE. As far as the quality is concerned, or the grading, it refers more particularly to the barrel; but there is getting to be a very general complaint, on account of the higher prices of apples in recent years, that there are so few apples in the Oregon box, so that they are looking for a little more. They think they are buying a bushel, and they do not get it.

Mr. HAWLEY. I would like to pursue that question a little further. Of course it is understood that everybody wants to get as much as he can from the other fellow, and a little more, if he can.

Mr. HALE. Yes.

Mr. HAWLEY. That is the point we are looking out for, on the other hand. But have you ever discovered in the northwest package any attempt to defraud the buyer, either in the number of apples stamped on the box, or the name of the apple on the box, or the size of the apple, or the quality?

Mr. HALE. We have an apple coming from Oregon, marked as "Oregon Reds," which all of us seem to recognize as our old Baldwin. We may be mistaken in that.

Mr. HAWLEY. Where does it come from?

Mr. HALE. I can not remember the place, but somewhere in Oregon. They are marked "Oregon Reds," but they look like the Baldwin.

Mr. POINDEXTER. Which is the best?

Mr. HALE. In quality?

Mr. POINDEXTER. Yes.

Mr. HALE. Ours is; there is no comparison in quality. The appearance of yours is a little better.

Mr. HAWLEY. If the apple is different, should they not put a new name on it so as not to mislead anyone? I never heard of that before.

Mr. HALE. I think perhaps these dealers can verify what I say in that respect.

Mr. HAWLEY. But that does not indicate about the quality, whether the quality runs even, or whether you have the sides and top of the box faced, and the inside loose packed.

Mr. HALE. The grade and size of your northwestern apples has set a pace for good, honorable packing, there is no question about that, and it has been a good thing for the apple trade. I do not know who, particularly, is to blame for it, but I regret to say that all of your northwestern people have fallen down this last year; you have poorer grades this year than I have ever seen before. There is an unusually good opportunity for my good horticultural friends to go home and stir up the people to pack their apples so as to keep up to the high standard that has been set. The result is that the box apples from the Northwest are not selling as well in our markets as usual. It seems to us as though there were a half a dozen apples taken out of the box, too.

Mr. HAWLEY. We will have a little testimony to offer on that a little later on.

Mr. HALE. I am speaking as a consumer now.

Mr. HAWLEY. When a box is packed as we put up a northwestern pack, does it not contain more apples than when they are thrown in loose and shaken down?

Mr. HALE. Yes; you get more apples in by packing.

Mr. HAWLEY. So that if the Lafean bill should pass, a man that packed his box by simply putting the apples in loose and shaking them down and then nailing on the cover, might put really no more apples in than are in the present box?

Mr. HALE. All the apples that I know of in the East are packed the same way as your western apples.

Mr. HAWLEY. There is no reason why, under this bill, the apples should be put in tiers?

Mr. HALE. No reason why, under this bill?

Mr. HAWLEY. Yes.

Mr. HALE. Perhaps not; but commercial honesty and a desire to get the highest price will stimulate the grower to do that.

Mr. HAWLEY. There will be no commercial dishonesty in putting the apples in loose, under this bill, because it is not provided that they shall not be packed loose.

Mr. HALE. Possibly not.

The CHAIRMAN. Proceed.

Mr. HALE. As I am a grower of fruits in the South, my business keeps me in the Southern States part of each year. The lower sections of the South have to buy all their apples, as they do not grow any at all; so that all the cities and towns and villages that consume apples in that part of the country have to buy them; and inferior packing has seriously interfered with the sale of apples in the South. I believe if this bill were to pass and the dealers in the cities and towns of the South could be assured of what they were getting every time it would double and treble the consumption of apples in the Southern States. It seems to me it is opening a great market if we can get such a bill as that.

I want now to speak as a grower of apples. In the Connecticut hills I have something like 400 acres of apple orchards, 14,000 or 15,000 trees or more. I am interested in getting all the money I can out of that project, because it is a costly project to care for those orchards according to the best modern practice, with all its developments of spraying and everything else, together with the high price of labor, so that it is necessary for the grower to get all that he can out of it, and I am looking for a market for the product of those 15,000 trees, and I find that there are 200,000,000 other trees in this country that I have to compete against, and all of us have got, in the near future, to hustle to find markets for our fruits, and as business men we are obliged to give the public the best service we can, in honesty of packing, integrity of grading, and quantity of fruit, and we are going to compete with Oregon and with Colorado and with Utah and with California in the box-apple package, a standard package that the people recognize as that in which they are going to know that they will get a certain number of apples and the size of the package.

The time will come when my Oregon friends and the rest of you will agree that it is to your advantage to do this, even if you do have to give a half a dozen more apples that you do not want to give now. This is a serious question that is up to us. There are 200,000,000 trees in this country of ours, and everything that can be done to broaden and strengthen the market is necessary, and it seems to me this bill comes as near doing that as may be. I wish, perhaps, that it went a little further.

The CHAIRMAN. In what particular would you suggest that it should go further?

Mr. HALE. I wish the grades were higher. In my own pack, of both the box and barrel apples, I am grading higher than the standard. If this law passes, I shall live up to the law and go a little beyond it, and then hope that the markets will be glad to receive it in that way. It is really because this bill will help to increase the consumption of fruit that I as an orchardist hope it will become a law, and I am sure that the consumers will be satisfied. They are willing to pay fair prices if they get proper treatment, but they want to know each and every time what they are getting. Thank you, gentlemen.

Mr. COCKS. I would just like to ask you, if you can tell us, the difference in weight between a barrel of Newtown Pippins and a barrel of Ben Davis apples?

Mr. HALE. I can not tell you; that is, I will not make a statement, but I will say offhand, guessing, the difference would be 10 or 12 pounds.

Mr. COCKS. Then we could not establish a barrel by weight, as we do with potatoes?

Mr. HALE. No, sir; they vary too much for that. We have apples of a very solid, fine texture, and then we have the loose-textured Ben Davis, and others of the same character.

Mr. HAUGEN. As a general thing, will the apples which are marketed come up to the standard?

Mr. HALE. They would come up to the standard, but they need separating. We have the different grades, A, B, and C, all in the same package; and unfortunately the A's come to the top, and the little ones are in the middle, and the consumer does not like that.

Mr. COCKS. Large potatoes always come to the top, do they not?

Mr. HALE. The gentleman on my left (Mr. Beall) asked the question whether the orchardist would get as much money for his crop if he graded his apples. I am satisfied that is so. My apple crop that goes into barrels this year according to standard are a quarter of an inch larger, and the A's and B's are selling at a liberal price. The third grades, which we do not grade at all, but stamp them "Baldwins" and "Greenings," brought almost as much as the others would. I am better off myself and there are a certain grade of consumers who wanted cheap apples who bought those third-grade apples. I think the consumer would be benefited greatly. We want to get rid of these middlemen as much as we can, and we want to bring the consumer and the grower together as much as we can; and we are going to be benefited when we can advertise in Kansas and California and Oregon and Louisiana that we have got barrels or boxes of United States standard size. I think the time is coming when a good many of the growers are going to advertise in the magazines and papers and reach the consumers directly; but the consumers must know what they are getting. I think they will answer those advertisements, many of them.

The CHAIRMAN. You speak of the difference in the size of the different boxes. Do you know how this impression became general among consumers, that the box contained a bushel? Did it formerly contain nearer a bushel than it does now?

Mr. HALE. I can not tell you how that came about, but there is a general impression that the box is a bushel box. It has been stated so at the horticultural meetings. I think it is a sort of a general impression, and yet they buy them on sizes; Oregon apples are sold in sizes, or a certain number in a box, and the dealer knows the number he is going to get. There is, however, a general impression that the box is a bushel box.

Mr. POINDEXTER. Does not an Oregon box contain a bushel?

Mr. HALE. In all the cases where I have seen them poured out and put into a barrel three of them would never fill it. I have only seen it tried with a 3-bushel barrel.

Mr. HAWLEY. Are you absolutely sure that your barrel contains only 3 bushels?

Mr. HALE. Yes; the New York barrel.

Mr. HAWLEY. Is not the way to measure to take the inside measurement of the barrel and the inside measurement of the box?

Mr. HALE. Possibly so. In the measurements I saw we simply took the barrel.

Mr. HAWLEY. And the barrel is so many cubic inches?

Mr. HALE. Yes; the barrel, I believe, was an honest, straight, 3-bushel barrel. It was made by a factory that turns out hundreds of thousands of them all on one standard.

Mr. POINDEXTER. I understood you to say that the object you have in view in developing your apple industry is to eventually come up to the point now reached by Oregon and Washington?

Mr. HALE. No, I do not think I said that.

Mr. POINDEXTER. And compete with them?

Mr. HALE. No, I did not intend to say that. I said your standard package and grading formerly, before you got astray, was right, and we have been benefited by that, and the apple industry has been stimulated by that.

Mr. POINDEXTER. Is there any complaint, or do you think that it is a fact that the apples shipped from Oregon and Washington are under the standard fixed by this bill in any way whatsoever, so far as the quality of the apple is concerned?

Mr. HALE. Oh, no, sir; it is simply the package, that is all.

Mr. LAFEAN. I would like to ask the gentleman a question. Based upon your experience, do you see any hardship that would come to the people of Oregon and Washington by reason of the change of these packages? Do you not think they could adapt their pack of apples to the new package?

Mr. HALE. There is no question about that.

Mr. LAFEAN. How many different styles of packages do you put up, yourself?

Mr. HALE. I do not in apples; but I can answer that question. I think our Oregon friends are perfectly sincere in the idea that their apples go in a particular box, and that you have got to have a box that will fit a particular apple, and that you can not change the size without seriously demoralizing the business; but I am sure that they are absolutely in error.

Mr. HAWLEY. We have had fifteen years' experience.

Mr. HALE. Well, some of us have had fifty years' experience, and then learn more.

Mr. HAWLEY. But not about these things.

Mr. HALE. In Georgia, where I have one of the largest peach orchards in America, and where we pack a dozen or fifteen carloads a day, the standard package down there was what was known as the Georgia carrier, a crate such as you put tomatoes in, carrying 6-quart baskets. As people began to increase in growing there, and began growing different varieties, they said "This is all right for a certain size, but how in the name of the board of trustees are you going to get it full if the peach is a little larger or a little smaller, or is oblong instead of round?" So we saw train loads of peaches go out with baskets half full, because if they filled them full they knew the fruit was going to be crushed, and there was no way to avoid that, as they thought. Then people trained in packing, who experimented in it, discovered the solution of the matter, and to-day these dealers will tell you that the crates that come from Georgia are all full. Some of them went so far as to say that they must have a separate kind of basket made, and instead of six baskets, put in seven, because they would pack better with the different kinds of peaches. I can not pack them myself, but to-day at my own packing house I have expert packers who can do this; and the foreman will walk in there in the morning when they are picking a certain style of peach, and he will say, "Use this basket, and use that to-day," and we have 42 different styles of packing, and some one of them will handle any size and any style of peach and have the basket full every time, and rounded, and everybody satisfied.

The CHAIRMAN. But you are providing the people of Oregon with only one size of box.

Mr. HALE. Oh, no; they can pack their apples in any way they like. We do not change our package; but any peach that God Almighty gives us, we can pack it and get the basket full.

Mr. HAWLEY. What proportion of your apples do you pack in boxes?

Mr. HALE. A very small proportion.

Mr. HAWLEY. How long have you been packing in boxes?

Mr. HALE. Only two years. Only 100 acres of my orchards are now bearing in a moderate way, and the rest are coming on; in a year or two another hundred acres, and the others a year or two later.

Mr. LAFEAN. I would like to ask the gentleman whether he cares to state to the committee the number of acres that he has under cultivation in fruits of various kinds.

Mr. HALE. I have no objection to stating that. I have about 3,000 acres of all kinds.

Mr. LAFEAN. Of all kinds?

Mr. HALE. Practically peaches and apples entirely.

(At 1 o'clock p. m. the committee adjourned until to-morrow, Thursday, March 10, 1910, at 10.30 o'clock a. m.)

COMMITTEE ON AGRICULTURE,
Thursday, March 10, 1910.

The committee met at 10.30 o'clock a. m., Hon. Charles F. Scott (chairman) presiding.

The CHAIRMAN. Inasmuch as the hearings are to be printed, we will not wait any longer for a quorum. Representative Lafean was called out of the city on important business, and at his request, and at the

request of the other gentlemen who are here supporting this bill, Mr. W. L. Wagner, of Chicago, will be recognized as the spokesman of the proponents of the measure this morning. I should like to remark, however, that the committee is glad to have any gentleman who is familiar with the subject under consideration ask a question of any witness who may be on the stand at any time; the purpose of this hearing is to elicit information, and the committee realizes that gentlemen who are engaged in the business to which this bill relates are likely to be able to ask questions that would draw out information which members of the committee might not otherwise obtain. I believe those who are supporting the measure prefer to complete their statements before those who oppose it are heard, and I will, therefore, ask Mr. Wagner to present his next witness.

Mr. WAGNER. I would like to introduce to you as our first witness this morning Mr. N. G. Gibson, of Chicago, representing the Western Fruit Jobbers Association.

TESTIMONY OF MR. N. G. GIBSON, OF CHICAGO, ILL., REPRESENTING THE WESTERN FRUIT JOBBERS ASSOCIATION.

(The witness was sworn by the chairman.)

Mr. GIBSON. Mr. Chairman and members of the committee, I appear before you as the special representative of the Western Fruit Jobbers Association, an organization composed of about 250 of the leading jobbers and dealers in apples in the western part of our country, from Indianapolis and Louisville, Ky., on the east, as far west as San Francisco; from Duluth, on the north, to Houston and Galveston on the south. Our members probably purchase and market 75 per cent of the western apples marketed in all that territory. We aim to do the most good in our capacity for the most people concerned; we want to do the right thing by the grower, and yet occupying the position on medium ground, selling the fruit to the smaller jobbers and the retailers who sell it direct to the consumers, we really come more in contact with the great mass of the consuming public than the shipper himself, and the buying and consuming public in our territory is probably 90 to 95 per cent of the population; there are not over 5 or 10 per cent of the population that are growers of apples. Take Texas alone; it is a wonderfully great consuming State, and many of the other Southwestern States.

Now, our organization has to take into consideration the demands of all these consumers. We ask them to hand their money over for the product, and they generally have something to say about what they are going to hand it over for. And in our territory probably 5 or 10 per cent of the apples are sold by the piece or the dozen; the great bulk of them are sold by the peck measure or multiples thereof, and we have to try to satisfy the buyers. We are heartily in favor of this bill, because it represents a standard whereby any of our customers sending in an order for a box or barrel of apples will know just exactly what they are going to get. Heretofore there have been so many different sizes of boxes that it has been confusing. Take our own city of Chicago, some of our largest dealers there have, for the last two years, discriminated against northwestern apples because our retail grocers claim they can not get $3\frac{1}{2}$ pecks out of a box. I, myself, am one of the largest handlers of western box apples in the

United States, and plenty of our customers have discriminated against the northwestern apples in favor of Colorado, because the Colorado boxes, as they use them, can measure 4 pecks. And, as I previously stated, the great bulk of the apples are sold by the peck measure or some parts of a bushel measure, and they want a box——

The CHAIRMAN. May I interrupt you to ask a question?

Mr. GIBSON. Yes, sir.

The CHAIRMAN. Is the quality of the Colorado apples and the Pacific coast apples sufficiently similar so that you can make a comparison of the price?

Mr. GIBSON. Yes, sir.

The CHAIRMAN. Then do the retail merchants get a box of Colorado apples of this large size at the same price as they get the Pacific coast fruit of corresponding quality?

Mr. GIBSON. Yes, sir; they do when we can persuade them to take the Pacific slope apples; they pay at the same price, but they discriminate in favor of the Colorado apples.

The CHAIRMAN. That would naturally be the case if the Colorado apple is the same; but what I was trying to get at was whether the purchaser was, as a matter of fact, the loser if he paid the same price for the small box of apples that he paid for the large box.

Mr. GIBSON. No, sir; he will not.

The CHAIRMAN. Well, if he doesn't pay the same price—for instance, if he buys $3\frac{1}{2}$ pecks and pays for $3\frac{1}{2}$ pecks—is he robbed because he does not get 4 pecks?

Mr. GIBSON. No, sir; he won't pay me for the $3\frac{1}{2}$ pecks the same price he will pay for the 4-peck box.

The CHAIRMAN. Ought you to try to persuade him to pay the same price?

Mr. GIBSON. Well, up to the present time we have been trying to get the same price for the northwestern apples as the others, but the trade is beginning to discriminate.

The CHAIRMAN. Well, why should you get as much for a $3\frac{1}{2}$ -peck box as for a 4-peck box?

Mr. GIBSON. We should not.

The CHAIRMAN. Then why have you been trying to get it?

Mr. GIBSON. Well, the supply has been rather limited up until now; they have grown a very nice apple in the Northwest, and on account of the short supply they have been able to get a good price for them, but this past season we have come down nearer the same prices.

Mr. HAWLEY. Are the Colorado boxes packed in tiers?

Mr. GIBSON. Up until the present time they have been faced and then packed in what we call the jumble pack, but they have been using a large-size box.

Mr. HAWLEY. The box would not contain as many apples as if it had been packed solid all through?

Mr. GIBSON. I do not think it would quite; no, sir.

Mr. HAWLEY. Has there been any lack of a market for the northwestern apples in the last year or so?

Mr. GIBSON. There has been in the last two years, in the territory which we represent.

Mr. HAWLEY. What part of the Northwest crop is unsold now?

Mr. GIBSON. I could not tell you, but a small percentage of the Oregon and Washington apples remain unsold.

Mr. RUCKER. I understand the Colorado box is slightly larger than what you call the Pacific slope box?

Mr. GIBSON. Yes, sir; considerably larger.

Mr. RUCKER. In buying do you pay the same price for the Pacific slope box, which is smaller, as you do for the Colorado box, which is larger?

Mr. GIBSON. It depends a little on the variety. If you grow one or two varieties—I will explain that a little to you; on the Pacific coast—

Mr. RUCKER. My question is, generally speaking, do you pay as much for the small box of apples from the Northwest as you do for the Colorado box?

Mr. GIBSON. No, sir.

Mr. BEALL. Now, come to the consumer, not the jobber, not the wholesaler or the retailer, but the buyer, who wants to buy a box of apples, does he know anything about the difference in the size of the box, or does he pay the same price regardless of size?

Mr. GIBSON. Well, the consumers in our own market, with whom we come in more close contact, know the difference in the size of the boxes, and they won't buy the small box.

Mr. HAWLEY. Does the Colorado box have on it the number of apples contained therein?

Mr. GIBSON. No, sir.

Mr. HAWLEY. The northwestern boxes do?

Mr. GIBSON. Some do and some do not. I should say that in one or two sections in the Northwest they do put the number of apples on, but they mark more generally the number of tiers in the boxes rather than the number of apples.

Mr. HAWLEY. Well, how many cubic inches does the Colorado box contain, such as has been in use prior to this time?

Mr. GIBSON. I think somewhere around 2,450 cubic inches is the present box, the box they use now.

Mr. HAWLEY. That is larger than the box proposed in the bill, is it?

Mr. GIBSON. Yes, sir.

Mr. HAWLEY. You are sure of those figures?

Mr. GIBSON. Yes, sir; there might be a few inches more, but I think it is practically 2,450.

Mr. POINDEXTER. I understood you to say that the dealers, the jobbers, have been trying to get the retailers to pay the same price for the western boxes that they pay for the Colorado boxes, is that what you stated?

Mr. GIBSON. I said they had been up to now, in order to please the shippers from the Northwest, but they are beginning to discriminate.

Mr. POINDEXTER. Well, what object would the jobbers have, except to look out for their own interests, in trying to get the same price from the retailers for the Pacific coast box as for the Colorado box?

Mr. GIBSON. Because we have to depend upon the buyer, the consumer, to market our apples; we have got to look out to have them market the apples.

Mr. POINDEXTER. Would it aid you in any way in marketing the apples to charge the retail dealer a larger price for the Pacific coast box, or the same price, than to sell it to him at a less price?

Mr. GIBSON. Well, I will tell you in what way it would aid us: It would establish a standard all over the country, and when anybody ordered a box of apples they would know what they were ordering; now, it is confusing with different sized boxes from different sections, and there are many sections that use different sized boxes; and the trade, when they order a carload of barrel apples, they know exactly what they are getting; it is not so with boxes.

Mr. POINDEXTER. That is a different question from the question that I asked you, whether there is any advantage to the jobber to collect from the retailer the same price for the Pacific coast box that they do for the Colorado box?

Mr. GIBSON. I think it would be a disadvantage to the jobber; his customers would complain to him if he charged the same price for the small box as the large one.

Mr. POINDEXTER. Then you would be perfectly willing to sell the Pacific coast box for a proportionate price, according to the difference in size?

Mr. GIBSON. For what they are; sell them on their merits; sell them for what they are.

Mr. POINDEXTER. That is satisfactory to the jobbers, is it?

Mr. GIBSON. I think it would be.

Mr. WAGNER. What is the method of handling this fruit at the present time, the northwest and western boxed apples, as between the grower and jobber? How does the jobber come into possession of them? Does he buy them or handle them upon a commission basis?

Mr. GIBSON. I should say the jobber buys 80 or 85 per cent of those apples and pays his cash for them.

Mr. WAGNER. In what manner is the first cost of those apples fixed to the jobber?

Mr. GIBSON. In what manner?

Mr. WAGNER. Is it a case of supply and demand?

Mr. GIBSON. Yes, sir.

Mr. WAGNER. And competition between the buyers and growers?

Mr. GIBSON. Yes, sir.

Mr. WAGNER. In your business, in the handling of this fruit, has your own trade ever complained to you because of the size of the boxes containing these apples and the variance between the size of the boxes?

Mr. GIBSON. Oh, yes; many of our customers, as I stated previously, some of our largest customers in Chicago, now refuse to buy Washington and Oregon apples on account of the size of the box.

Mr. RUCKER. Is it on account of the size of the box or due to the fact that you want them to pay the same price for the small box as the larger box?

Mr. GIBSON. No; simply on account of the size of the box. Grocers come in our store and they say: "We do not want those, we want these, because we can measure out 4 pecks." It doesn't seem to be so much a matter of price as it is the size of the package; they want a box that gives 4 pecks, and then they know how to figure.

Mr. HAWLEY. That being the case, it should affect the sale of the northwestern apples?

Mr. GIBSON. It does.

Mr. HAWLEY. But the northwest dealers can sell all the apples they can raise, and the demand for them they have never been able to satisfy to any appreciable extent.

Mr. GIBSON. That is on account of the limited supply you have had up until now; but I am looking at this matter in a little broader light; you have got millions of trees coming on out there, and there will come a time, I tell you, in the next two or three years, when you will not get as much money for a great many of your varieties of apples in the West as they do in Colorado.

Mr. HAWLEY. That is your opinion?

Mr. GIBSON. Even on the same size of box. Well, I have been marketing those apples ever since they have been shipped from the West.

Mr. HAWLEY. Are you dealing in Canadian apples at all?

Mr. GIBSON. Sometimes.

Mr. HAWLEY. Do they have standard packages?

Mr. GIBSON. They do; barrels.

Mr. HAWLEY. They have standard barrels?

Mr. GIBSON. Yes, sir.

Mr. HAWLEY. What is the size?

Mr. GIBSON. I do not know exactly the dimensions, but they have a standard barrel.

Mr. HAWLEY. Do they have a standard box package?

Mr. GIBSON. I do not think they do.

Mr. HAWLEY. I was informed they had a standard box package, and it was the same as the northwest special; that Canada had adopted for her standard box package the standard northwest special box?

Mr. GIBSON. Well, Canada doesn't ship 2 per cent of their apples in boxes, anyhow.

Mr. WAGNER. Based upon your experience, would a box of apples packed in a box of the proposed standard size, as indicated in this bill, realize on the markets a proportionately larger value than they do in the box in which they are now packed?

Mr. GIBSON. They would.

Mr. WAGNER. The question was asked yesterday of one or two of the witnesses as to whether or not complaints had ever been heard as regards the packing and grading of western and northwestern box apples, relating particularly to the States of Washington and Oregon. Have you ever heard of such complaints?

Mr. GIBSON. Yes, sir; we have had numerous complaints.

Mr. HAWLEY. What was the nature of them?

Mr. GIBSON. Poor grading and packing, the same as in the barrel section. Some of the packing of northwestern apples is perfect, but it is not always perfect.

Mr. WAGNER. Can you call attention to one specific instance, Mr. Gibson?

Mr. GIBSON. Well, the president of the Washington State Horticultural Society, Mr. J. L. Dumas, shipped apples East which great complaint was made about. I know of two cars that were shipped to the New York market and refused by the consignees; they turned them over to another man to sell; they were so poor he could not sell them on the New York market, and they exported them to get

them out of the way, and the net result was a loss then of 20 cents a box.

Mr. HAWLEY. Do you know of any other instance?

Mr. GIBSON. We buy a great many apples out in the Northwest ourselves; my friends, through myself, bought probably more than half a million dollars' worth this year, and I want to tell you now we have got a great many apples in boxes that were not packed right. I could mention to you shippers who do pack right, but they don't all of them do it. Some of the northwest shippers out there deserve great credit for the fine packing they have sent out, but that does not mean them all. I do not think they do it intentionally; there are a great many new growers who do not know how.

Mr. HAWLEY. What was the trouble with those apples in that specific instance?

Mr. GIBSON. Small sized, not graded, not uniform, should never have been shipped in any grade.

Mr. HAWLEY. You do not happen to remember any other specific instance?

Mr. GIBSON. I know that this same grower shipped apples to New York and had them rejected before. I have an editorial from a New York paper, if you would like to have it.

Mr. HAWLEY. We are very much interested in maintaining the standard of our packs, and we would like to know those who are falling down in them. I understand you stated but one instance.

Mr. GIBSON. Well, I should say that 25 per cent of the shippers of the Northwest put up a good pack of apples, and I believe there are fully 75 per cent of the growers there who do not pack right. I have handled them from every section in the Northwest.

Mr. HAWLEY. Then it ought to be easy for you to specify some other instance.

Mr. GIBSON. I can not recall now the names of the shippers, but I have handled the apples all my life.

Mr. WAGNER. In your handling of apples, does your experience qualify you to answer as to the method of packing apples; that is, as to whether the apples can be packed in different sized packages successfully?

Mr. GIBSON. It does; yes, sir.

Mr. WAGNER. In your opinion can the fruit of the northwestern States be packed to as good advantage in a box of the proposed dimensions in this bill—the cubic capacity—as in the boxes used at the present time in the Northwest?

Mr. GIBSON. Absolutely, yes.

Mr. WAGNER. To clear up the record I would like to ask Mr. Gibson one question relative to the Colorado box and its size. Are the correct dimensions of the Colorado box $11\frac{1}{2}$ by $11\frac{1}{2}$ by $18\frac{1}{2}$ inside measurement?

Mr. GIBSON. I think it is.

Mr. WAGNER. As now used?

Mr. GIBSON. Yes, sir.

Mr. WAGNER. That, I believe, measures 2,413 cubic inches, instead of 2,450, as approximately given.

Mr. GIBSON. Yes, sir.

The CHAIRMAN. Continue your statement, Mr. Gibson.

Mr. GIBSON. I would like to say something a little further in regard to some of the people with whom we deal in the West. At the annual meeting of the Western Fruit Jobbers' Association held in Denver in January, our association went on record unanimously as recommending this present box, and since that meeting the growers and shippers of Colorado, and I believe some in Hutchinson, Kans., New Mexico, and some in Utah, met at Grand Junction on February 14; previous to this meeting the Fruit Growers' Association of Grand Junction took this new box, which we are recommending, and experimented with it with every size, shape, and kind of an apple, and they stated they could pack them in this new box perfectly, and at their meeting on February 14 there were 19 associations, representing all of the growing sections of apple in Colorado, unanimously adopted this box in this bill, after experimenting with the packing of the box.

Mr. NEWELL. You spoke of one object of this bill being to make it so that any dealer or buyer would know exactly how many apples he was going to get in a box, so all boxes would contain exactly the same amount.

Mr. GIBSON. Yes, sir.

Mr. NEWELL. Now, the Colorado box is larger than the box proposed in this bill and the one we use is smaller, and I believe you said the Colorado box is jumble packed. Now, I ask you if you would be willing to say that the Colorado people could get as many apples in the same size box with their jumble packing as we get with our careful, tier packing?

Mr. GIBSON. You could get more apples in the standard box than you are getting in yours, in any way, shape, or form.

Mr. NEWELL. You mean if we adopt this Lafean standard and they adopt it also then we will get exactly the same quantity of apples in that box?

Mr. GIBSON. I think you will, because they adopted the tier packing at this same meeting.

Mr. NEWELL. You said they wouldn't get as many in because of their jumble packing?

Mr. GIBSON. That is in their former method of packing?

Mr. WHISTLER. Is there anything in this bill that states the method that shall be employed in packing?

Mr. GIBSON. No, sir; I do not think so.

The CHAIRMAN. How many boxes are used in this country, in sections where there is a large fruit industry, smaller than the one described in the Lafean bill?

Mr. GIBSON. Well, I will commence with California; they have been using a smaller box. Would you like approximately the number of boxes shipped this year?

The CHAIRMAN. I was going to get at that next. Let us have the States first.

Mr. GIBSON. California, Oregon, Washington, and some parts of Idaho have used a smaller sized box; Montana uses a few smaller ones, but they do not ship many.

The CHAIRMAN. What proportion of the total apple crop of the country is supplied by the States you have named?

Mr. GIBSON. The total crop of the whole country?

The CHAIRMAN. Yes.

Mr. GIBSON. Well, I should say probably 7 or 8 per cent of the total crop in the United States is grown in the Northwest, from Colorado west.

The CHAIRMAN. Are you familiar with the orange industry?

Mr. GIBSON. Somewhat; yes, sir.

The CHAIRMAN. Is there a uniform box used by that trade?

Mr. GIBSON. There is; yes, sir.

The CHAIRMAN. How did it come to be adopted?

Mr. GIBSON. I can not tell you just how it came to be adopted, but there is a uniform size of box used for oranges, and in that box they pack every size of orange that grows and pack it full and perfect.

The CHAIRMAN. Is the same sized box used in Florida and in California?

Mr. GIBSON. No; they use a little different sized box in Florida.

The CHAIRMAN. There never has been any legislation, any federal legislation on the subject?

Mr. GIBSON. I do not think so; there may have been in California, but I am not familiar with it.

The CHAIRMAN. I said federal legislation.

Mr. GIBSON. No federal legislation.

Mr. HAWLEY. There is a little difference in the packing of oranges from the packing of apples, isn't there? An orange is soft and can be pressed without any damage?

Mr. GIBSON. I do not think so. We press apples to quite an extent in putting them either in barrels or boxes, to make them tight and solid, just as much as they do oranges. And some say certain sized apples, on account of their shape, can not be packed the same as oranges. I say they can. We have expert packers who can pack any shape, size, or kind of an apple in one box just as good as another, and our expert packers taught your people in the Northwest how to pack their apples. When they first came East I did more to distribute your western apples in the Eastern States, at least to give them a reputation, than anyone, even of your own people out there.

Mr. HAWLEY. If the witness is through, I would like to call attention to a clipping which I have here. I do not want to take your time unless you are willing.

Mr. GIBSON. I am perfectly willing.

Mr. HAWLEY. This is from the Oregon Daily Journal, March 4. It says:

[Special dispatch to the Journal.]

HOOD RIVER, March 4.

That the apple box proposed by the Lafean bill will generally disarrange the apple-packing methods of the Hood River system was fully demonstrated yesterday, when the apple growers' union attempted to pack Hood River apples into a box of the dimensions proposed by the Lafean bill. It was found that the Spitzenbergs, Ortley, Ben Davis, and other apples of the larger varieties can not be packed to advantage. Several of the most expert apple packers of Hood River attempted the demonstration. The members of the Hood River Apple Growers' Union also opposed the provision that makes the sizes of the apples grade on the basis of fancy or choice. It is possible that the method of wrapping apples in paper, as is now common here, will be replaced by the filler system.

That which I wished to call your attention to especially was the inability of these expert packers to pack such a box. They have good packers at Hood River. I think you will admit they put up a very fine apple box, which commands a very high price.

Mr. GIBSON. They put up one of the finest boxes that comes East; but I emphatically dispute their statement when they say they can not pack them; I know they can.

Mr. HAWLEY. It is a difference of opinion among experts, isn't it?

Mr. GIBSON. Well, in Colorado 19 associations experimented on the same proposition and they claim they could.

Mr. HAWLEY. They may not have the same sort of apples.

Mr. WHISTLER. I wish to ask the witness on the floor how long Colorado has experimented in tiering their apples in a box?

Mr. GIBSON. They have not packed many in tiers before this year; after this bill came up Colorado was greatly interested in it, and they experimented this year. We have some apples in cold storage now, of our own, that were tier packed in Colorado in a box which is a little larger than even this bill calls for now.

Mr. HOWELL. What is the difference in quantity between the contemplated box and the tier-packed box?

Mr. GIBSON. No special difference; you might get a few more apples in a tier pack than in a jumble pack; but the pack which we recommended is the diamond pack, the same as oranges are packed; that will hold a few apples more than the ordinary tier-packed box which they now use West.

Mr. HOWELL. There is nothing in the bill, as I understand it, that requires any particular manner of packing these boxes.

Mr. GIBSON. No, sir; it doesn't require any special kind of a pack.

Mr. HOWELL. If he fills the box with a jumble pack, or any way he may see fit to pack it, it will pass as a box of apples?

Mr. GIBSON. It will, but the trade will be critical; they will hold a man to the way he packs it.

Mr. WAGNER. Mr. Gibson, you have been asked relative to the smaller boxes in the Northwest. Again relating to Colorado, what proportion of the boxed apples produced in the country are grown in the State of Colorado, approximately?

Mr. GIBSON. This past season I should say Colorado shipped at least 55 per cent, possibly 60 per cent, of the total shipments of all the apples from the box producing States of the Northwest and West.

Mr. WAGNER. What proportion does California produce of the remainder?

Mr. GIBSON. I think this year approximately 25 per cent.

Mr. WAGNER. That is, of the total?

Mr. GIBSON. Yes, sir.

Mr. WAGNER. And these two States are advocating this proposed standard box?

Mr. GIBSON. Yes, sir.

TESTIMONY OF MR. ALBERT WOOD, OF NEW YORK, REPRESENTING THE WESTERN NEW YORK HORTICULTURAL SOCIETY.

(The witness was sworn by the chairman.)

Mr. WOOD. I have been sent here as a fruit grower, by our old association, the Western New York Horticultural Association, that has been in existence fifty-five years; it has a membership of 1,500 members, and we have under our control, that is, the members do, an acreage of between 35,000 and 40,000 acres. As fruit growers we

have indorsed the Lafean package barrels. We do not know very much about boxes up there as yet; we know more about barrels; we have indorsed the grade package of the Lafean bill, the three varieties. We want to be as close to the consumers as we can. We want to give them a good pack, a grade pack, as this bill calls for, so that the consumer will know at arm's length what he is buying, and we think by that method it will enhance the value to the consumer, and, of course, the more that is consumed and reaches the consumer the better it will be for us. That is about all I have to say, only we have indorsed the bill as we want it.

Mr. POINDEXTER. What part of the apple crop of New York is packed in boxes?

Mr. WOOD. Well, commercially speaking, not any; but we think that with the introduction of this new Doucin stock from foreign countries it is possible we will box more or less of that fruit. We are superior in quality, but we lack in colors, and therefore the New York people think it is best to use barrels; it is a barrel section. New York State demands it and foreign countries demand it, and I want to say, if you will allow me, just one thing more, that when we have this grade established it will help us to a great extent. The dealers and a great many of the growers keep our fruit in chemicals. Invariably some of us lack money to carry that on, and with this graded pack we could go to our banks and say we wish to borrow so much money on five or ten thousand barrels of the A grade, and the banks would not hesitate to let us have a dollar, a dollar and a half, or two dollars a barrel; when we go to them now they hesitate; they do not know whether they are number 2 or what they are; that wouldn't happen if we had a graded pack.

The CHAIRMAN. That reminds me of a question that I thought ought to be asked in the course of this hearing. How do you expect the grading to be done? I know the Lafean bill provides for certain grading in the packing, but how is the buyer or the banker to know that the provision of the bill has been complied with? Do you contemplate a system of inspection, and the employment of federal inspectors to follow up the apple crop all over the country and see to it that yourself and others pack according to this law?

Mr. WOOD. Well, we would expect, from a grower's standpoint, that when we put the U. S. brand on a grade it will be there and nothing else.

The CHAIRMAN. Who would put it on?

Mr. WOOD. The grower, and it would be sold to the dealer as such.

The CHAIRMAN. Do you think that the grower, who is not a sworn officer of the Government, could be authorized to put the brand of the Government on a package of apples?

Mr. WOOD. No; I do not understand that he would be authorized to put it on; I understand that he would put it on his own packing and he would pack his fruit so that he would be entitled to put that on.

The CHAIRMAN. And if apples which the grower had branded, we will say, "U. S. Size A," were found in point of fact to be "U. S. Size C," would some penalty attach?

Mr. WOOD. Why, I should suppose so; I should hope so.

The CHAIRMAN. Who is to be the judge who is to pass upon these questions?

Mr. WOOD. Well, I am not so very well posted on that, but I suppose it will be turned over in a federal way, like the inspection of our pure-food laws; that is the way I look at it, that it would fall in that same channel.

The CHAIRMAN. We are spending a good deal of money every year to enforce the pure-food law. Have you given any consideration to the probable expense of enforcing this law in the same way?

Mr. WOOD. Why, yes, I have thought of it some; but you will understand that the way I understand it is that as long as the apples pass from the grocer to the dealer and the dealer to the consumer satisfactorily, there never would be any cause for inspection; only an inspection when the grade was turned down.

Mr. HAWLEY. Suppose a grower was shipping apples from Grand Junction, in Colorado, and he shipped a train load of 25 cars to New York—they are subject to this inspection, aren't they?

Mr. WOOD. They would be if they were not up to the standard.

Mr. HAWLEY. Well, they are subject to inspection; you can not get around that. Do you think the jobber would have the right to pass upon the question whether they were up to the grade?

Mr. WOOD. The jobber?

Mr. HAWLEY. Yes; the buyer of the apples.

Mr. WOOD. Why, I should think so, if he had any judgment.

Mr. HAWLEY. Shouldn't that inspection take place before the apples left Grand Junction, so that the producer of the apples might know that no such question could be raised?

Mr. WOOD. I haven't given that any special thought.

Mr. HAWLEY. That would necessitate this same system of inspection on the part of the Government, of visiting the several apple-growing districts and assuring the growers, when they packed their apples, that they were packing them according to the law, giving the necessary advice and assistance, as is done in the meat inspection, by having inspectors present at the killing of the animals?

Mr. WOOD. Well, I suppose to be on a business basis it should be.

Mr. HAWLEY. Well, isn't that absolutely necessary in order to be fair?

Mr. WAGNER. May I ask the witness a question? Has your experience as an apple grower qualified you as an expert in interpreting law?

Mr. WOOD. No, that is outside of my business.

The CHAIRMAN. The committee was only endeavoring to find out whether he had given the question any thought.

Mr. WAGNER. There are those who have given that thought.

Mr. HAWLEY. I think the committee has a right to question the witnesses as they desire. You are here as an expert apple grower?

Mr. WOOD. Yes, sir; from my section, yes, sir.

Mr. HAWLEY. I see it provides here for well-grown specimens, that is, uniform, well-grown specimens. I suppose the specimens of apples, of the different varieties, are the same all over the United States?

Mr. WOOD. I do not understand that. Well, yes, in different sections different varieties of apples do not look the same.

Mr. HAWLEY. The bill says, "Well-grown specimens." Who is to determine that?

Mr. WOOD. It is determined by the size of the grade; there is where the grade comes in, for the good of the consumer.

Mr. HAWLEY. Well, then, this does not mean anything about the well-grown specimens; it simply refers to that two and a half inch size.

Mr. WOOD. They must be fairly grown, they must be good apples.

Mr. HAWLEY. Following that up, it says, "Of good color for the variety." Is the color the same all over the United States, and one year after another the same with regard to the same varieties?

Mr. WOOD. Well, there is a difference in seasons as to the color of apples and—

Mr. HAWLEY. Who is going to determine the color?

Mr. WOOD. The section of the country and the way they grow them. If they do not have a bright, brilliant color, you will have to throw out more of them.

Mr. HAWLEY. Here are 5 carloads of apples received in New York from 5 different growing sections of this country this season; next year there is a different season, and, therefore, the apples would be colored differently, wouldn't they?

Mr. WOOD. Yes, sir.

Mr. HAWLEY. And yet you are going to establish a standard of color?

Mr. WOOD. They shall be as good color as the section of the country will stand.

Mr. HAWLEY. Under such conditions you would have going into New York City, from five sections of the country, apples of five different colors, of "good color for the variety," standard apples of the United States, and standard packed, but each would be differently colored, and they would look like five different kinds of apples?

Mr. WOOD. I do not think so, not of the same variety; no, sir.

Mr. HAWLEY. But they would be very differently colored.

Mr. WOOD. You must understand, Mr. Congressman, that sod-grown apples and cultivated apples—

Mr. HAWLEY. But you are missing the point. By this bill we are establishing a United States standard and we are making a penalty of \$500 fine and imprisonment for the violation of that standard. Now, that standard ought to be well defined. I want to know if you, as an expert apple grower, could write out such a statement of all these things as would enable a man of ordinary intelligence and experience in packing apples to be absolutely sure that he is within the law?

Mr. WOOD. I think so; yes.

Mr. HAWLEY. Will you do it?

Mr. WOOD. No, I don't think I could, but a man could by the instinct of packing apples. Now, the way I understand it is that in the first place you have got to have size and you have got to have a clear apple, free from insects, fungus, and bruises, and as good a color as we could give to it; that is the way I should write it.

Mr. HAWLEY. That is all a matter of judgment, and very indefinite to make it a matter of criminal law.

Mr. WHISTLER. Won't you refer now to the question of normal size, as it is referred to in this bill? In dealing with such apples as the Beitigheimer, the Wolf River, the Twenty-Ounce Pippin, and

Glori Mondi, whether he has got to say that the 2-inch apple of those sizes is of normal size, and if not, who is going to say it?

Mr. WOOD. Well, the grower in packing apples and making that grade should take the varieties into consideration.

Mr. WHISTLER. Is there anything in this bill that relates to that question?

Mr. WOOD. I do not think so.

Mr. WAGNER. Mr. Wood, are not the varieties just named the largest varieties of apples that are known? The Wolf River, the Glori Mondi, and those other varieties, are they not the largest varieties of apples that are known?

Mr. WOOD. Yes.

Mr. WAGNER. Did you ever see a well-grown specimen or a specimen of any desirability whatever, that could be graded, under the terms of this bill, down to the "C" grade?

Mr. WOOD. No.

Mr. HAWLEY. Would you say a well-grown specimen of the Glori Mondi should be as small as $2\frac{1}{2}$ inches?

Mr. WOOD. I do not know a thing about that variety of apple; you take the Wolf River and the Twenty-Ounce Pippin and take them down to 2 inches, they wouldn't be well-grown apples, in my judgment.

Mr. HAWLEY. The Glori Mondi is a variety of apple that is quite large; $2\frac{1}{2}$ inches is the largest size recognized in the bill; therefore, you could pack that variety of that size because they would comply with the specifications in a way.

Mr. WOOD. I suppose so, but as to the other apples, they would not be well grown.

Mr. HAWLEY. That is a matter of judgment, isn't it?

Mr. WOOD. No, sir.

Mr. WHISTLER. Well, we are back to the question of these well-grown specimens. When we come forward with these new specimens, and with which the witness says he is unfamiliar, how is the question of the nature of these apples—as to whether they are well-grown specimens or not—how is that question to be determined when we come to put this law into operation—who is going to judge?

Mr. WOOD. Well, a man would have to use his own judgment; he ought to know; a dealer ought to know and a consumer ought to know whether the apple is well grown or not, according to the variety.

Mr. POINDEXTER. Would you, as a grower, be willing to leave the decision of that question to the jobber?

Mr. WOOD. Well, I do not know whether I would or not. When you get down to a large growing apple and get it down to 2 inches, I should be inclined to throw it out altogether.

Mr. WAGNER. As a grower, if the jobber was to complain of the grading of your apples and under the provisions of this bill that question were to be submitted to a government inspector, would you then submit?

Mr. WOOD. Yes, I should.

Mr. HAWLEY. But in the bill nothing is provided for this inspection; it would go to the courts.

Mr. WAGNER. I would submit that if a complaint were filed with the pure-food officers and an inspection made, I believe cognizance would be taken of the matter.

The CHAIRMAN. I presume you rely upon section 4 for that presumption?

Mr. WAGNER. Yes, sir.

Mr. HAWLEY. But if the grower should resist an inspection or the decision of the inspector there would be no standard established, or no determination prior to the shipment, and he would have his day in court?

Mr. WAGNER. Most assuredly. But the guilty man, whether he be a jobber or grower, would have to pay the penalty.

Mr. HAWLEY. And the grower has no protection in the matter or inspection prior to the time that the goods arrive at destination; that is, under this law?

Mr. WAGNER. He requires no protection prior to that time; that which is all right in its inception will remain all right, unless changed through his own act or the act of some other party.

Mr. HAWLEY. That is not altogether the case; he may believe, in entire good faith, that he has complied with the terms of this bill, but the courts may decide he has not done so.

Mr. WAGNER. Ignorance, I believe, is no excuse.

Mr. HAWLEY. Surely, that is what I am saying; it is a matter of judgment; he uses his best judgment, acts in good faith, but if the facts are against him on the trial of the case, he goes to prison and must pay his fine.

Mr. WAGNER. Most assuredly.

Mr. WOOD. I should work that out in this way: If I should put up a barrel of apples, well grown, according to the variety, and of fairly good color, which would not pass in the market, I would not put on any U. S. brand; that is the way I should get out of it; I would let them go and let them sell for what they would, but not put on the U. S. brand as to any of those grades; I would comply with the law.

Mr. HAWLEY. You would comply with what your judgment was?

Mr. WOOD. Yes, and when I couldn't I wouldn't put it on.

WESTERN NEW YORK HORTICULTURAL SOCIETY,
Rochester, N. Y., February 25, 1910.

Mr. C. B. SHAFER,
Gasport, N. Y.

MY DEAR SIR: I regret that I can not at this writing place my hands on the brief report made by our legislative committee at the fifty-fifth annual meeting of this society, held January 26-27 last. But as you are in a hurry to get this letter, I will say that after due deliberation this society adopted the report of its legislative committee, favoring the adoption of the Lafean bill as reported to them in a recently revised form from that of last year.

Very truly,

JOHN HALL,
Secretary-Treasurer.

Mr. WAGNER. I would introduce to your committee Mr. E. B. Norris, of New York, representing the New York State Fruit Growers' Association and the New York State Grange.

TESTIMONY OF MR. E. B. NORRIS.

(The witness was sworn by the chairman.)

Mr. NORRIS. Mr. Chairman and gentlemen of the committee, I am here to represent the State Fruit Growers' Association of the State of New York, which has a membership now of about 800. We had our first organization, I think, about ten years ago. This organization is a part, as you might say, of the offshoot of the Western Horticultural Society, and also of the Eastern Horticultural Society. It is composed of the very best, up-to-date, progressive fruit growers of the State of New York. When this bill was brought to our consideration at our annual meeting, at our last annual meeting, held in January, I was then chairman of the committee on resolutions, and this bill was pretty well thrashed out before that committee, and it was passed by the organization almost unanimously.

We believe, sir, that in the carrying out of the provisions of this bill it will be in the interest of the fruit growers, especially the fruit growers of our State. We have come to the conclusion that uniformity of package and the quality of the fruit is what is to stimulate, in the future, the sale of the fruit and the growth of our business as horticulturists. For that reason we favor the uniformity of a package that will specify as to its dimensions, so that a dealer or a consumer will know what they are getting, so that a certain brand of apples, in a barrel or a box, and put out under the standard of the Government, will be recognized, and will show that what is going to the consumer is an honest barrel of fruit under that package. It would necessarily have to be so under that grade. New York State was up against this proposition several years ago. We have had a good many different standards of packages in the State of New York.

I am speaking about the barrel; I do not know anything about the box business, and I do not want to talk along that line; all I know about is the barrel, and that is what I am talking about. We first had a package—in fact the first package of apples was put out in what used to be termed an old flour barrel, holding 169 pounds of flour, and about three bushels and a half of apples; that was the standard of barrel; that was first put out by the Maine people, and when we came into our eastern market with a smaller barrel they would say, "We get so many more apples in a Maine barrel that we prefer to buy those apples, providing the quality is about the same." In fact, there was no standard then; there were all classes of barrels. Then we came down to use what was known as the pony-size barrel; we were coming up against the other size barrels in the market and that was making a good deal of trouble for us; so that a few years ago, I think it was two years ago, I was on the committee that met with the committee that adopted the size of package known as the New York package, a stave of 28½ inches, a head of 17½ inches, and a bulge circumference of 64 inches; that is the standard-size barrel of the State of New York.

This bill provides for the same standard of barrel. Now, we believe that the interests of the grower will be better subserved by the provisions of this bill; that is, he can command better prices for his fruit; as these millions and millions of apple trees come into bearing and as these apples go into the market, why, of course, the man that is the progressive man, who puts up his apples according

to standards, and everything, is the man that will win out, and, therefore, we hail—the fruit growers of the State of New York hail—the passage of such a bill as this, because we believe it is a step in the right direction. I will also say that the New York State Grange, an organization that numbers now over 90,000, unanimously adopted this bill at its last annual session in February. Now, Mr. Chairman, I do not know that I have anything more to say, only we believe——

Mr. NEWELL. Who do you understand is going to decide whether the pack is according to grade and properly marked and branded?

Mr. NORRIS. I should say that it would be decided just about the same as the fruit of the evaporating associations. There was a great deal of scrimmage over the moisture and the color of evaporated fruit, and they finally appointed an inspector in the State of New York and different States, and he inspected that fruit. Now, I believe there should be a federal inspector, that is, he would be known as such, a person who, in case there was any question, or where a barrel of graded apples had been turned down, would decide as to the questions. I am not a lawyer; I am not standing here as a lawyer; I am a plain farmer and fruit grower; I am not supposed to decide legal questions.

Mr. NEWELL. I want to know whether, if you should pack a carload of apples at your place, under this United States standard, you would be willing to ship that carload into the city and trust to the man who receives it to decide whether that is well packed or not?

Mr. NORRIS. I do not know whether it is provided here for an inspection, but that is a question that I think could be very easily adjusted as between the grower and the buyer.

Mr. NEWELL. How so? If there was no inspector would you trust him and would he trust you?

Mr. NORRIS. Here is a standard to go by.

Mr. NEWELL. But who is to say it is up to the standard?

Mr. NORRIS. That is a matter to settle between the seller and the buyer.

Mr. NEWELL. Who is to decide it?

Mr. NORRIS. The apples are mine and the buyer is buying my apples; if not satisfied that my apples are up to that standard, of course, I am then putting myself in the way of a penalty, I should judge.

Mr. NEWELL. I would like to know from the witness who he is going to have decide that question?

Mr. NORRIS. Who decides it now, under the present system?

Mr. NEWELL. No one.

Mr. HAWLEY. There is no penalty under the present system.

Mr. NORRIS. Is there any penalty provided in the bill?

Mr. HAWLEY. I should say there is; \$500 fine and imprisonment, or both of them.

Mr. NEWELL. If the buyer claims the apples are not up to the standard, who is going to decide it?

Mr. NORRIS. I should say the courts.

Mr. NEWELL. You would have to go there every time there was a dispute between you and the buyer.

Mr. NORRIS. What do you have to do now?

Mr. NEWELL. If you have any trouble about your apples, you have to go to the courts with your trouble.

Mr. NORRIS. If I am a grower, I am willing to stand the penalty; if I do anything that is wrong, I am willing to pay the \$500.

Mr. WAGNER. You have been asked, Mr. Norris, if you would be content that the commission man should determine whether your pack was according to grade, and my question will be, would you be willing that the Federal Government, who would have the enforcing of this bill, should construe what this bill means and interpret it?

Mr. NORRIS. I should, most assuredly. And in answer to your question, Mr. Newell, I would say that I should be very careful of the commission man I was dealing with, if I thought he was going to make any trouble.

Mr. RUCKER. You would exercise great care in packing your apples and in meeting this requirement?

Mr. NORRIS. I certainly should.

Mr. RUCKER. If you recognized the fact that you would be amenable to a criminal statute?

Mr. NORRIS. Yes, sir.

Mr. RUCKER. Of a \$500 fine and imprisonment for a year, or one or both?

Mr. NORRIS. Yes.

Mr. RUCKER. And do you understand that that would apply to each and every package in the carload or train load shipped? I think it would. If there are 500 boxes, and it should be held, even after exercising your best care, that you had fallen a little below the standard, you would be amenable not only to one prosecution, but you might be fined so much as to be kept in jail for your entire lifetime?

Mr. NORRIS. I am in favor of any law that will make the fruit grower honest with the dealer.

Mr. RUCKER. Well, I assume that, and that is very commendable, but I am not in favor of a law that would take an honest fruit grower, because there are some who are honest, and make him suffer such severe penalties when he has done the best he could to comply with the law, and as has been stated, ignorance of the law is no excuse; you have to conform to it.

The CHAIRMAN. Let me ask whether there is now any law in New York State relating to the grading or packing of apples in any way?

Mr. NORRIS. There is not; no. There is no law.

Mr. HAWLEY. Your barrel is a standard barrel?

Mr. NORRIS. Yes, sir.

The CHAIRMAN. How does the barrel prescribed in this bill compare with your standard?

Mr. NORRIS. The same thing.

The CHAIRMAN. So it will not change the size of your package at all?

Mr. NORRIS. No, sir; but as to boxes, they are beginning to use them in my State. I have a letter here from the commissioner of agriculture of the State of New York, Mr. Raymond Pierson, which I won't take your time to read, but it is here and he gives his full indorsement to this bill.

Mr. COCKS. Don't you think that if some of our New York apples were boxed as carefully in boxes as is the boxed apple they would bring a good price?

Mr. NORRIS. I think they would bring better prices. Notwithstanding the fact that your Hood River apple grows to be a very

fine apple, and you are to be commended on your method of packing and handling them, I wish to say that there are no apples that compare in flavor with the apples grown in New York State along Lake Ontario and over on the south shore.

TESTIMONY OF MR. S. L. LUPTON.

(The witness was sworn by the chairman.)

Mr. LUPTON. Mr. Chairman and gentlemen of the committee, this is the first time I have ever made a speech under oath; consequently, the situation is somewhat embarrassing. I also feel some embarrassment at being introduced to this committee as a senator. You gentlemen here in Washington are too near the real thing for such an introduction to go without some explanation. I feel as though, under the requirements of the Lefane bill, I ought to be branded with my cubical contents. I do not hold anything like as much as the average United States Senator. [Laughter.]

These gentlemen who have preceded me in advocacy of this bill have all come here representing large associations of dealers and growers, and they have left very little for me to represent. On one occasion, Mr. Chairman, a philanthropic gentleman visited an orphan asylum for the purpose of adopting a boy. A half dozen or so likely youngsters were lined up in front of him for selection and investigation. The first boy was asked what he could do, and forthwith he responded with a long statement of his accomplishments; the second boy was then asked what he could do, and he responded in a similar vein, only adding something to what was previously said; and so on down the line until the last youngster was asked what he could do, and he said "Nothing." "You can not do anything at all?" He said, "No, sir. Now, governor, don't you see that these other kids haven't left me a damn thing to do?" [Laughter.] Gentlemen, those who have preceded me have left me almost nobody to represent except myself.

We people in Virginia are extremely anxious that the Congress should do something to standardize fruit packing and fruit packages. In order to make this matter quite clear, perhaps I may be pardoned for giving you just a brief history of the apple business. A good many years ago the apple business was an individual proposition. Each grower made his crop and packed it to suit himself and shipped it to the market, usually to a commission man, and took what he could get, what his market justified. Latterly, however, in view of the adoption of cold-storage systems and other improvements in the handling of fruit, especially apples, the business is becoming systematized. It is becoming an important part of legitimate business, and with that systematization we must have standardization. Of course, I can speak only for my own sentiments, but I think it is fair to say that 85 or 90 per cent of the fruit we grow in Virginia is bought by the dealer outright from the grower, or put in store by the dealer.

Under those circumstances the grower packs very little if any of his own fruit, the dealer generally putting a man in the orchard to superintend the packing, and the grade or brand is in accordance with the contract, whatever that may be; and under those circumstances there has practically been no standardization. I might illustrate our position, if you please, Mr. Chairman, by supposing that

there came before you here a company of gentlemen from the grain-growing sections of the West and that they came here before this Committee on Agriculture and said to you, "Gentlemen, we have a standard for wheat and corn and similar products, but we are tired of having that standard and we want each man to be allowed to go his own gait, and to have his own standard of products, and we ask you to repeal the law which we have been working under, standardizing grain." How long would this committee entertain such a proposition? How long would it be before they would be laughed out of court? That is exactly the position in the fruit business to-day. We have no standard; we have no standard of package or packing, and we simply come to this committee and ask that we be put on a parity with other products on similar lines in the agricultural world.

Not long ago I visited Richmond, Va., and went into a cold-storage house, and by actual count I counted sixteen sizes of barrels in that one storeroom. One gentleman who has preceded me, Mr. Gibson, I think, said that if you ordered a carload of barrels of apples, you knew what you were getting. I beg to differ with Mr. Gibson on that point, because we have at least a dozen different sizes of barrels which are used in the trade of packing apples. I saw barrels in that Richmond cold-storage house from sugar-barrel size, measuring 4 bushels or over, down to $2\frac{1}{2}$ bushels. Among them were lime barrels and all sorts of barrels. That sort of business is inevitably going to ruin our fruit business unless we can do something to correct it.

There is a reason why most of the gentlemen who have been here to-day and yesterday are jobbers and dealers in fruit. Without meaning at all to criticise or disparage those gentlemen, I claim that they are largely responsible for the condition of affairs which exists to-day. The fruit grower himself is one of the sweetest and cleanest and most innocent creatures on the face of the earth, and I submit that proposition to the Representative from Oregon, to say if it is not so; but the fruit grower has been a most willing pupil, and he has learned how to pack fruit in a good many ways that it ought not to be packed; and in view of the fact that most of the bad things that we have learned so easily have been suggested to us by the dealer, it is all right for us to come here now and undertake to undo what he has been doing in the past, and it is absolutely essential for our interest and for his interest that this policy which now prevails throughout the country, of packing fruit in various sized packages and various grades of fruit, be corrected if possible. Something was said yesterday by Mr. Bahrenburg about the percentage of shipments of fruit abroad as between this country and Canada. With proper apologies to Mr. Bahrenburg, I want to take exception to his figures. The percentages which he read to you yesterday seem to me of relatively little importance because that matter is controlled largely by the crops produced in this country and Canada. If we have a full crop of fruit in this country we ship more of it abroad, naturally. If we have a short crop, as we have had for one or two years past, notably last year, the market in New York is better than the market in Liverpool and consequently we do not ship much. Canada, on the other hand, is shut out from this country in the main on account of the tariff exactions, and therefore Canada ships regardless of the crop in the United States.

Mr. STANLEY. What is the tariff on apples?

Mr. LUPTON. I really could not say. It is enough to keep them out. Some of you tariff experts ought to be able to answer that question. I have an impression that it is 90 cents a barrel.

Mr. WAGNER. It is 25 cents a bushel, and they figure it out 75 cents a barrel.

Mr. LUPTON. I thought it was something in that neighborhood. But, Mr. Chairman, whenever American apples come in competition with the Canadian apples abroad, the Canadian apples always sell for more money. That is, the same variety in the same sort of package will sell for more money if it is a Canadian apple than if it is an apple from the United States. There are only one or two exceptions to that rule, and that is because they are special varieties that grow here. That does not apply to the Oregon Spitzenberg or the Virginia Albemarle pippin. That does not mean anything as to the quality of the fruit, because they do not grow those varieties in Canada. The reason for that, we think, is what is commonly known as the Canada fruit market act, under which they are compelled to put up their fruit in a proper way, and those packages do not have to be examined and the contents poured out on the platform when they get abroad before the dealer will take hold of them.

Mr. STANLEY. Is not the fruit inevitably bruised in that process?

Mr. LUPTON. Inevitably so. Right there, in answer to the question of the gentleman, I want to state a little thing that I got from the Agricultural Department some time ago. I shall try to remember it as accurately as possible. The statement was to this effect—that of a certain large number of packages of fruit shipped to England from Australia, after a passage of three weeks, not a single package was opened, because of the fact that the dealer knew that the package was standardized. Of a similar number of packages shipped from America, every package had to be opened and examined before the dealer abroad would accept it.

Mr. HAWLEY. Do you know from what State those apples were shipped?

Mr. LUPTON. I do not.

Mr. HAWLEY. Or where they originated?

Mr. LUPTON. I do not. You mean in this country?

Mr. HAWLEY. Yes; what part of this country?

Mr. LUPTON. I presume, generally speaking, in the East, sir. I presume, in the East.

Now, Mr. Chairman, I hope that you will hold the watch on me and if I detain the committee too long you will stop me. A good deal has been said here about the Oregon apple, and personally I am willing to take off my hat to the Oregon apple growers, and especially the Hood River people. They have taught us a great deal about growing fruit, and more about packing, and we are very greatly indebted to them. We are going to try as hard as we can to at least try to grow fruit comparable to, as good as, that grown on the Hood River in Oregon; but I do say that our Oregon friends take themselves just a little too seriously. As a youth I helped to plant the first commercial apple orchard, on my father's farm, in the Valley of Virginia. I am not an old man yet, as the members of the committee have doubtless observed, and this year the station in my county in the Valley of Virginia, Winchester, shipped approximately as many apples as the whole State of Oregon. The station in the adjoining

county of Berkeley shipped approximately as many as Winchester. So that while the Oregon people do produce a very superior apple, both in flavor and color, still there are other sections of the country that are doing fairly well in that line of business, and I might say here that our prices approximate those received for the Hood River apples. We got \$3.65 a barrel last year for red apples, and \$4 for Albemarle Pippins, in the orchard, which I think approximates the price that the Hood River people received, even if you go back to the tree and take in all the expense of cultivation.

I do not understand that this bill undertakes to do anything with the Hood River people—with the Oregon people. If this bill should become a law, and I were in the Hood River country, I would do just as you are doing now, I would go right ahead with my own packing of my own fruit, because it is better than anybody else's, and you would have something better than anybody else just as you have now.

Mr. WHISTLER. Mr. Chairman, I would like to know if the gentleman would willingly put the term "short box" upon the package of fruit, and send it out before the world? I want to know how he would feel if he had to do that?

Mr. LUPTON. In reply to that, I would say the gentleman would not use a short box if he could help it; but putting that brand "short box" on there would not injure the sale of the fruit.

Mr. WHISTLER. You just now said you would continue to use the box that they are using there now.

Mr. LUPTON. Yes, sir.

Mr. WHISTLER. And this box, according to the bill, must be branded "short box." How would you feel about that question?

Mr. LUPTON. It must be marked "short box" or else marked with the contents of the box.

Mr. WHISTLER. Yes.

Mr. STANLEY. There seems to be a difference of opinion here between the growers themselves.

Mr. LUPTON. Naturally, just as there is between the members of the committee.

Mr. STANLEY. Is there not some line of demarcation, roughly speaking, separating those who are sending their fruit out in large packages and those who are sending their fruit out in small packages, of the same size, or ostensibly of the same size?

Mr. LUPTON. You mean does this hearing indicate a line of demarcation between the box men and the barrel men?

Mr. STANLEY. No, sir. There seems to be two factions, one for boxes and the other for barrels. It seems as if, or I gather from this hearing, that these are indeterminate quantities.

Mr. LUPTON. Absolutely, sir.

Mr. STANLEY. And there are a class of you growers who want this to be a definite, fixed package, and there are others of you who want it to remain unknown. Now, is this fight between the men who are putting their fruit in packages of a large size and the men who are putting their fruit in packages of a small size, although the consumer generally supposes that the two packages are of the same size?

Mr. LUPTON. I think not. I have not caught any such drift.

Mr. POINDEXTER. The difference is, is it not, that those who are now using the standard fixed by this bill are in favor of the bill, and

those who have a different standard, which is proposed to be changed by the bill, are opposed to the bill?

Mr. LUPTON. I think that is a pretty fair statement.

Mr. STANLEY. And those who are in favor of the bill have a standard of larger measure than those who are opposed to the bill?

Mr. LUPTON. If you will pardon me, a good deal has been said here, and a question was asked by the gentleman on my left about this large box, and the question was asked whether the consumer knows, when he buys a box of apples, just what he gets. I believe that was the question that was asked. In answer to that question, Mr. Chairman, I would say that the consumer, if he ever does buy a box of apples, which is not so often—that is, the ultimate consumer—thinks that he is buying a bushel of apples; there is no question about that. There is a general belief all over the country that there are three bushels to a barrel, and that a box holds one bushel. That is the fact, and there is no getting away from it. That is the belief all over the country, that the box holds one bushel and the barrel three bushels.

Mr. STANLEY. Is there the same difference in the contents of a box of oranges or of lemons, and is there the same general belief as to the contents of those boxes?

Mr. LUPTON. I do not know a thing about that. I do not know a thing about the citrus-fruit business.

Mr. POINDEXTER. Can you answer that, Mr. Wagner? Is there the same difference in the boxes of oranges and lemons in the various sections?

Mr. WAGNER. No. California uses a uniform box, and Florida, also, in its section.

Mr. POINDEXTER. But the two boxes are different?

Mr. WAGNER. There is a slight difference in the cubical contents of the two boxes.

Mr. STANLEY. Not a material difference?

Mr. WAGNER. The difference is not material, and they do not conflict to quite the same extent that apple boxes do.

Mr. NEWELL. You are a member of the Virginia Horticultural Society?

Mr. LUPTON. Yes.

Mr. NEWELL. You attended their last meeting?

Mr. LUPTON. Yes.

Mr. NEWELL. Then, I will ask you if this statement is correct. We have here an account of the proceedings at that meeting. It says:

The Oregon box was adopted as a standard of the society for the apple package.

Is that correct?

Mr. LUPTON. That is true. I wrote the resolution myself and caused its adoption; and the explanation of that is simple. We are beginning to pack apples in boxes in Virginia; not very many. We have two or three box factories in Virginia, and each fellow thought that he had a better sized box than the other fellow, and we had not only the California box and the Colorado box, and possibly a new box, but also we had two or three sizes of Virginia boxes, and we took the best thing in sight, and the best thing in sight was the Oregon box. We were conversant enough with the vicissitudes of

legislation not to adopt a box which was in a bill which might not pass, so that we took the best thing in sight, and took the Oregon box.

The CHAIRMAN. Was the Oregon box the smallest of those?

Mr. LUPTON. No, sir; I think not. I think the question was up for discussion about taking a Virginia box, which was perhaps even smaller than the Oregon box.

Mr. HAWLEY. You are familiar with the fruit market act of Canada?

Mr. LUPTON. Only in a limited way.

Mr. HAWLEY. Probably you can answer this question. The Canadian government has adopted the New York standard apple barrel.

Mr. LUPTON. I understand so.

Mr. HAWLEY. And they have also adopted the northwest special for the box pack?

Mr. LUPTON. That may be true, but I do not know that. Virginia has adopted the New York apple barrel. And just there, Mr. Chairman, a question occurs to me. Suppose the Lafean bill fails to pass; we are absolutely certain to have as many standard apple package laws in the near future as there are States. New York has got one and Virginia has got one and Michigan has got one. Now, suppose, Mr. Chairman, that the New York people go back home and secure the adoption of a standard box of the size in the Lafean bill. What are you Oregon people going to do; how are you going to get into the New York market when you do bring a short box? We have had that in Virginia. I was thoroughly inclined to introduce a standard barrel for Virginia, and it was adopted after the New York law, and our law requires the package or barrel that goes out of the State of Virginia short to be stamped "short." How are you going to get into the New York market with your short box, if New York should happen to pass a bill similar to the Lafean bill?

Mr. HAWLEY. If you really want an answer to that, I would say that that is not troubling us.

Mr. LUPTON. Perhaps not. Perhaps you think, from inquiries that have been made, that there will be other markets which will be ample for you.

A good deal has been said about different varieties of apples requiring a different sized box. I confess that I am not well posted on that point, but it seems to me utterly impossible to get a box package and have a different sized box for each variety of fruit. I think the Oregon people have already determined that for a particular size of your Spitzenberg you need a different sized box from that which you need for another size of the same variety.

Mr. STANLEY. I have read this bill, but not with technical care; I have read it several times, and I do not see that they prescribe a particular sized box. That is, it does not fix the dimensions.

Mr. LUPTON. It does not.

Mr. STANLEY. You can change the size. You can not change the cubic contents.

Mr. LUPTON. No, sir.

Mr. STANLEY. The form is not prescribed?

Mr. LUPTON. No, sir; not at all; you can change the form of the box, the shape of the box, but not the cubical contents. I was going to say that you can not possibly get a standard box that will meet

the requirements of all sizes of all varieties of fruit; and as to the inquiry of Mr. Whistler, as to these Gloria Mundi and Wolf River apples, with those large varieties we are not attempting to standardize. Those large apples are not grown in such quantities as to make it necessary. The Wolf River apple is a show apple; the quantity grown is not large enough to amount to anything.

Mr. STANLEY. I am not an expert mathematician, but I should think it would be a comparatively simple problem for an expert mathematician to prescribe the form of a box to fit any apple; for instance, for an apple of that size [indicating large apple], so many for a space of such and such cubic contents. Could that be done?

Mr. LUPTON. If you please, one reason why the box form of package has not been adopted more readily in the East is the very great variety of shape and size of the same apple grown in different localities. In my own section of the country we grow largely a variety known as the York Imperial. The peculiarity of that apple is that it is almost uniformly irregular in shape. You pick your Imperial apples from a tree, and some will be flat and some will be oblong and some lop-sided, and it is an extremely difficult matter to sort those apples out so as to pack them in a box, and I think that is one reason why the box package has not made its way more rapidly in the East. Personally, I do not agree with some of the gentlemen who believe that the box package never can make its way in the East. I believe it will do so. I want to use it myself, if we can use it.

Mr. COCKS. How about the Albemarle Pippins?

Mr. LUPTON. They run regularly, and can be very readily packed in a box, and I have no doubt in a short time a large portion of those apples will be packed in boxes. We are already packing them in boxes.

Mr. HAWLEY. In regard to what you said a moment ago, does not the bill propose to standardize all apples?

Mr. LUPTON. I think so; yes, sir.

Mr. HAWLEY. It is not an attempt to standardize certain kinds?

Mr. LUPTON. If you will excuse me, I made this objection to the bill the other day. I would like to see an amendment inserted on page 4 of the bill, on line 23. After the word "the" on line 23, and before the word "name," I would like to see the word "true" inserted, so as to make it read "the true name of the variety." I suggest that because in my neighborhood last year I saw several hundred or perhaps several thousand barrels of Ben Davis apples packed and branded "King Pippin," and I do not want that; I want the true name of the variety inserted on the package in all cases. I should like very much to see that amendment inserted in this bill, so as to compel the true name to be put on the package.

Mr. HAWLEY. Do you mean the true name of the variety or of the locality?

Mr. LUPTON. The true name of the variety.

Mr. HAWLEY. That is provided earlier in the bill.

Mr. LUPTON. I do not find it so, sir.

Mr. HAWLEY. It says apples of one variety.

Mr. LUPTON. Yes; but I want the true name of the variety stamped on the box.

Mr. HAWLEY. Then, you think there is sometimes a dispute as between localities as to what an apple is?

Mr. LUPTON. No, sir; it is deliberate deception.

Mr. HAWLEY. Oh!

Mr. LUPTON. Taking a poor variety of apple like the Ben Davis and branding it something else.

Mr. HAWLEY. Sometimes the same apple has two or three names.

Mr. LUPTON. There ought to be no difficulty about that. Now, I want to answer your question. I suggested that amendment yesterday and was met at once by the very thing you suggest. There is some difference of opinion as to varieties. Now, wherever you find an apple that is so little known as to have such a difference of opinion on the point of its identity, that apple ought not to be standardized; it ought not to come in under this Lafean bill, and it will not come under it until it gets to be an appreciable marketable quantity.

Mr. HAWLEY. You would not keep it out?

Mr. LUPTON. If I had a tree of Wolf River apples or Gloria Mundi apples, I would not try to put those apples in under this bill at all. I would let them go for what they are worth. And so in regard to any variety that was not a commercial consideration; I would let that variety go for what it was worth.

I have already taken up too much of your time, but I want to say just one thing more. I am sorry that this committee has seen fit to dwell so long on the size of the package. What I am most interested in is the contents of the package. I am willing personally to accept the Oregon or the Colorado box; I am willing to take the Lafean bill; but I do insist that the future of the apple industry in this country depends on whether or not we can standardize the quality of the fruit in the package. Now, I do not care whether you call it "Choice," or "Fancy," or "Extra Fancy," or what not. I object to those names because they have been used for years in a perfectly indiscriminate manner, and they do not mean anything. I rather like the designations as provided in the bill, classes A, B, and C, because that manner of designation has never been used in this connection.

Mr. HAWLEY. What would you do with the apples larger than class A?

Mr. LUPTON. They would go right in with the class A apples; and on that point, you take our Hood River apples, they have a class of Spitzenbergs out there that were better than class A. Brand them what you please.

Mr. HAWLEY. Why not standardize and make a 3½-inch class and a 3-inch class and a 2½-inch class, and a 2-inch class?

Mr. LUPTON. There is this objection to that. You fix your standard according to that Hood River product, and it is too high for us. Now, you can have a class "Double A," if you want it.

Mr. HAWLEY. Why not recognize conditions as they exist in this legislation, and not make special legislation and discriminate?

Mr. LUPTON. The question is, against whom are you going to discriminate? Are you going to discriminate against the man who grows 20,000,000 barrels or against the man who grows 6,000,000 barrels of apples?

Mr. HAWLEY. There can not be any discrimination in the size, if everybody is entitled to brand their apples in that way.

The CHAIRMAN. The question was raised a few minutes ago as to the complications that might arise on account of the provision in

this bill in the matter of grading. Does that seem to you to be a serious thing?

Mr. LUPTON. It does not. I understand this bill will be under the provisions of the pure-food act. Now, the cider mills of the country and all the cider that is produced in the country to-day come in under the pure-food act, yet there is no government inspection; there is nobody stationed at the cider mills to see that the provisions of the act are complied with. Take all the pickles that are made in this country, and there is not a man stationed at any pickle factory to see that the law is complied with.

Mr. HAWLEY. Are not all these things, cider and all the other things covered by the pure-food act, capable of chemical analysis and test to see whether they do comply with the requirements? And is it not true that the things dealt with in this bill are matters of judgment only?

Mr. LUPTON. I judge from the controversy which I have recently seen going on in the papers of the country between the chemists of the Department of Agriculture there is just as much matter of judgment there as anywhere else.

Mr. HAWLEY. It is not a matter of that; it is a question of the physiological effects. It was not a question between the chemists whether it was or was not benzoate of soda, but the question was whether it was deleterious to human health.

Mr. LUPTON. I do not anticipate any difficulty on the point of grading, and I understand that really the fundamental principle of the pure food and drugs act is the bill of lading. Now, if the carload of apples is made up in the orchard and the party puts a brand on the bill of lading and specifies what it is and that carload of apples goes to a city, the bill of lading follows, and if there is any question raised about the contents of that package you must connect the bill of lading with the apples and decide the question, and I presume that is a matter of judgment, to some extent; and if the two parties interested can not get together they will have to do like any other disputants, they will have to go to court.

The CHAIRMAN. Here is one other question upon which I would like your opinion. I notice the grades are designated as "U. S. Size A," "U. S. Size B," and "U. S. Size C." Of course "U. S." is presumed to stand for "United States."

Mr. LUPTON. Yes.

The CHAIRMAN. And if packages bearing that brand were sent abroad I presume the impression would go with them that the packages had been branded by a United States official, would it not?

Mr. LUPTON. I do not know; it might.

The CHAIRMAN. Is there not danger of that; and in case some packages should be sent abroad that were obviously misbranded, would not the reflection come upon the whole country?

Mr. LUPTON. There might be some difficulty in that way, although just a few days ago I saw a bottle of pickles branded "United States Standard."

Mr. COCKS. Would it not make a good deal of difference whether it was marked "United States Standard" or whether it was marked "Inspected and passed, United States Standard?"

Mr. LUPTON. I think it would.

Mr. COCKS. It would make all the difference in the world to me.

Mr. LUPTON. Yes.

Mr. COCKS. Then if it was not up to United States standard, the man making it would be liable to prosecution; but it does not say that it is.

Mr. LUPTON. I hope that after you pass this bill, as I hope you will do, we might then have, as they have in Canada, an inspection at the port of export, so that this fruit could go through some sort of inspection there. I would be only too glad to see this bill amended so that all fruit exported abroad would be inspected at the port of export.

Mr. POINDEXTER. Would it be practicable to inspect it at the port of export? Would it not require the opening of the boxes in order to make a genuine inspection?

Mr. LUPTON. Yes; I think perhaps one box in ten would have to be opened.

Mr. POINDEXTER. It would have to be unpacked and repacked?

Mr. LUPTON. No, sir; I do not think it will require that. Such an inspection as would satisfy a reasonably careful government official that the contents of the package was what it was claimed to be would be sufficient.

Mr. NEWELL. How could you tell about what was in the middle of a barrel?

Mr. LUPTON. You could unpack one or two barrels of a carload. It is easy to do that.

Mr. WAGNER. You could take out a stave of the barrel.

Mr. NEWELL. How about the staves in the box?

Mr. WAGNER. I have sold thousands of boxes without inspection, and without unpacking them.

Mr. LUPTON. I would suggest that the necessity of opening packages of any kind would be very sensibly diminished, and I think it would have that effect.

Mr. BEALL. Suppose this bill passes. You are an apple grower in Virginia or Oregon. You grow all sizes of apples that you want to put on the market. You grow apples that are much larger than the size specified here as "U. S. Size A." Would there be any difficulty in your packing those apples in any kind of box that you wanted to pack them in, and sending them out on the market?

Mr. LUPTON. I am not quite sure.

Mr. BEALL. You could put them in barrels or boxes, little boxes or any kind of boxes you wanted to, so long as you did not put those brands on them specified in the bill?

Mr. LUPTON. Yes, sir.

Mr. BEALL. It would not interfere with the sale of apples larger than "U. S. Size A" specified here?

Mr. LUPTON. Not at all, and I believe that matter could be readily adjusted just as our Oregon friends do it now. They have a standard pack out there, and they brand on the box "Four Tier," "Three Tier," or "Five Tier," as the case may be; and when Mr. Gibson or Mr. Wagner wants to buy a carload of Oregon apples, he specifies what pack he wants, and he gets a large-sized apple if he asks for it or a medium-sized apple if he asks for it, or a small-sized apple if he wants that size.

Mr. CHAPMAN. I suppose all those sizes would be standard apples?

Mr. LUPTON. Yes; but they would be "Four Tier A" or "Five Tier A" or "Three Tier A," as the case might be, containing 48 or 72 or 125 apples in the box.

Mr. BEALL. Suppose you had an abundance of small apples, coming below the "U. S. Size A."

Mr. LUPTON. Coming below "U. S. Size C," you mean?

Mr. BEALL. Or even below the "U. S. Size C." You would have no difficulty about the size of box? There is nothing in this bill that would prevent your putting that class of fruit in any kind of box or barrel, of any size or dimensions whatever?

Mr. LUPTON. In any manner at all.

Mr. BEALL. And putting them out on the market without any brand on them?

Mr. LUPTON. Nothing at all, as I understand.

Mr. BEALL. Or if you had fruit meeting all these specifications and did not want to put this brand on it, you could put that fruit in any kind of box or barrel and send it into any market?

Mr. LUPTON. Anywhere.

Mr. BEALL. And find a market for it?

Mr. LUPTON. Just so long as I did not put "United States Standard" on it.

Mr. BEALL. But if you do pack your fruit in boxes and put these particular marks on the boxes, then you must put them in boxes containing the cubical contents prescribed here?

Mr. LUPTON. Yes.

Mr. BEALL. And they must be of the size and variety and conform to the specifications required here?

Mr. LUPTON. Yes.

The CHAIRMAN. Your statement is not quite accurate, Mr. Beall. The bill in section 4 provides that in case the box is smaller than the one prescribed in this bill, it shall be marked "short box," or shall be marked with the number of cubic inches that the box actually contains.

Mr. BEALL. Well, I do not know whether that is correct or not.

The CHAIRMAN. That is the language of the bill.

Mr. BEALL. Suppose the box is marked "U. S. Size A" or "U. S. Size B" or "U. S. Size C;" then is there anything in the bill requiring you to mark a box "short box?"

Mr. LUPTON. I should say there was.

Mr. CHAPMAN. Yes, sir.

The CHAIRMAN. I think if you will read the paragraph beginning on line 20 on page 3 of the bill you will agree with me.

Mr. BEALL. I see that, but I would construe that to apply only in case he is attempting to market his apples to conform with the requirements of this bill.

The CHAIRMAN. That is what I supposed you were assuming.

Mr. BEALL. And if the box should not be marked "U. S. Size A" or "U. S. Size B" or "U. S. Size C," then he would be free to ship his apples in any kind of barrel or any kind of box, or any sized box.

Mr. LUPTON. Something has been said here about the difficulty of ascertaining the color of fruit. The same variety does not get the same color each year. I have met that difficulty in my own orchards. One year I am able to pack 84 per cent of No. 1 apples because my

fruit is highly colored. Another year I am only able to pack 48 per cent of No. 1, and the green fruit has to go in with the lower grades. Sometimes it is too green to pack at all, and I have to let it go into the canning apples or cider stock. You can not, in Oregon, put your green Spitzenbergs, if you ever have any, in that first-class package. So that I see no difficulty there.

But in conclusion, gentlemen, let me urge upon the committee again that the prime importance, in my judgment, of this bill is to standardize the contents of the package.

Mr. HAWLEY. Following Mr. Beall's line of thought, it is provided under section 1 of the bill:

The term "closed package for apples" shall apply to any barrel, box, or basket in which the apples can not readily be seen or inspected.

Mr. LUPTON. I understand from the provisions of the bill that it is aimed to prevent the shipping of apples in closed packages in other sizes of packages than those provided in the bill?

Mr. HAWLEY. Standard United States packages?

Mr. LUPTON. Yes; that the package is standardized whether the contents are or not. In the other case the package and contents are both standardized.

The CHAIRMAN. The committee should have adjourned several minutes ago. I think we will try to resume the hearing this afternoon, if the members of the committee can attend, and we will now stand adjourned until 2 o'clock.

(At 12.45 o'clock p. m. the committee took a recess until 2 o'clock p. m.)

AFTER RECESS.

COMMITTEE ON AGRICULTURE, HOUSE OF REPRESENTATIVES, *Thursday, March 10, 1910.*

The committee reconvened at 2 o'clock p. m., Hon. Charles F. Scott (chairman) presiding.

The CHAIRMAN. The committee will come to order. Mr. Wagner, will you introduce your next speaker?

Mr. WAGNER. Mr. Chairman, I would like to introduce to your committee Mr. C. P. Rothwell, representing the State of West Virginia and the International Apple Shippers' Association.

TESTIMONY OF MR. C. P. ROTHWELL.

(The witness was sworn by the chairman.)

Mr. ROTHWELL. Mr. Chairman and gentlemen of the committee, for over twenty-five years I have been engaged in the buying, marketing, storing, and growing of apples. For a number of years I have been identified with the International Apple Shippers' Association, and have handled their statistics in the way of crop estimates and storage reports, and in that way I believe that I am familiar with market conditions as they existed, especially east of Colorado, and with the wants of the trade covered in that territory. In my official capacity I have had considerable correspondence with reference to the bill that is now being considered by your committee. There are

two features to this bill. The first is the standard package feature, and the second is the standard grading feature. There are practically two main interests that are represented, and should be considered, in my judgment, in considering this bill.

First, but not the greatest interest by any means, is that of the growers, and second is that of the great mass of the American people, the consumers. In my judgment, gentlemen of the committee, this bill as it stands to-day injures no one that is interested in shipping, growing, or marketing apples. It is the result of consideration, deliberation, and compromise to reconcile all the different interests in the apple trade.

The CHAIRMAN. Pardon me; right there, in that connection, are you able to state just the history of this bill, so that the committee may know from whom it comes?

MR. ROTHWELL. I believe that I can. For years there has been an agitation among the growing interests and the shipping interests as to the advisability of arriving at some sort of standardization in the apple trade generally. After the fruit trade market act was enacted in Canada and found to be a success the dealers took the matter up with the growers in the United States and started conferences here and conferences there until it finally resulted in the drawing of a bill and a calling of the different interests together in a conference in Washington something over a year ago for the consideration of the bill as it had then been drawn, and I have here the record of that meeting.

After two days' deliberation and consideration with every interest represented, this bill is the result of that conference. It was adopted by every body which was represented at that conference, that voted, and there was but one representative there that did not vote. I wish to call the attention of this committee to what he said and to the reason that he gave for not voting in the affirmative, or rather for not voting at all. Doubtless each of the members of this committee has received letters pro and con from certain sources, either opposing or favoring this bill.

There is one point, gentlemen, to which I want to call your attention as committee men. I want you to carefully scrutinize the letters that you may have from the growing interests of this country that are opposed to this bill, and I think that in 99 out of 100 cases you will find this to be the fact, that the writers do not understand the bill. They are opposed to it simply because they have a mistaken idea of the force and effect of this bill. I hold here in my hand a letter under date of January 15 of this year from a member of the state board of horticulture in the State of Missouri, giving advice to the general public and opposing this bill. He was writing this letter to a member who was higher up in office in the association than he, and this is what he says:

This bill is not made in the interests of the great apple consuming public.

He is a Missourian. I am sorry that our friend from Missouri [Mr. Rucker] is not here. I would like to read him what his constituent says about it. Repeating, he says further:

This bill is not made in the interests of the great apple consuming public that can not afford to eat fancy or strictly No. 1 apples, which would be too high-priced under the operation of this bill were it a law and properly enforced.

Note now, if you please, what he further says:

It would prohibit a majority of the apple growers from marketing the greatest amount of fruit they raise.

Now, just listen to such a proposition as that!

Mr. LAMB. I received that letter and turned it over to the gentleman from Missouri, so that he has seen it.

Mr. ROTHWELL. Now, I do not doubt the honesty of this gentleman, but he is just simply mistaken. I have had this same question in my correspondence. I have been asked by the secretary of the International Apple Shippers' Association: "If we had this bill would it prevent us from doing this in the way of packages, or in the way of grading?"

Now, there is not a single sentence in this bill that supports the position taken by this gentleman from Missouri in this letter; and so I say, if you analyze the correspondence that you have received in opposition to this bill, I believe that 99 out of 100 of the protests you will find have arisen from a mistaken idea of what the bill really means, and its force and effect.

What is the situation of the grower with reference to this bill? First, let us look at the package. There are two ends of this question; let us take the package proposition first. I will state here, gentlemen, that I am not as familiar with the apple-growing interests west of Colorado as I am in Colorado and east, but I have been present at the several discussions with them, and I have corresponded with them, I handle statistics from the distribution of their box apples in our association, the same as we do in the barrels, and I think I am familiar with market conditions, and with market objections to packing, and packages, and matters of that kind. I do not think that our friends from Washington and Oregon, who are practically the only interests that are opposing this bill with any degree of force, are going to be nearly as badly hurt as they think they are, if this bill should become a law. It was said in our conference a year ago, by their representative on the floor of our meeting:

The territory that I represent, in the not far and distant future will grow a very considerable portion, if not a major portion, of the commercial apples of this country.

If that is true, if they are planting orchards to the extent of bringing up production to that amount, then it behooves them to take steps to join hands in any movement that will help to broaden our markets and increase the consumption of their product. And mind you, in the territory that raises those apples they are not going to market them, within themselves. I want the gentlemen to tell this committee how large a proportion of their output goes east of Colorado and goes out of their district and comes down here into the barrel-apple district to go into consumption. They must come east and depend upon the eastern markets to successfully market their product; and it behooves them in their own interest, as it does everybody else, to put up a package, to have such a package as will best meet the requirements of the trade they are seeking to control and to obtain.

Now, does this present box meet that requirement? We contended in that meeting that it did not, and we are contending here to-day that it does not; and for that reason we contend that a different standard from the one used in Oregon and Washington should be adopted. At the outset of that conference we were met with

rigid opposition on the part of their representatives here, something over a year ago, and I want to read a few words from page 18 of the record of that meeting, this being a part of the opening address by Mr. Dumas, of Washington. He said:

I say to you gentlemen, our State will not tamely submit, after having considered this thing and thrashed it out in their organizations year after year, to having the size of box changed.

We were still discussing the matter at the second day's meeting, and after we had thrashed the thing out in conference as to what was to the best interests of all, and after the compromise had been made and the present size of box, as stipulated in this bill, was adopted as the sense of the meeting, this is what was said:

Gentlemen, I do not want to be unreasonable at all. We are sent here to represent our people and we are restricted as to what we shall do. I must confess that my views have changed to some extent—

He had listened to reason—

and I believe it is possible that we may be obliged to give a heaping bushel, however unreasonable that may be. I am willing to admit that this is not a bushel—

He was contending for a 2,150-inch bushel—

and when it comes to a vote on this question I shall not vote, because our people, I am sure, will not consent to the proposed change.

Yet after discussion he says that they may have to adopt this. He says, "We may have to give a heaping bushel," which is the only kind of a bushel, gentlemen, that anybody ever heard of for measuring apples, except the gentlemen from the Northwest.

Our contention with reference to that, and how they would be benefited, would be this: They have a bushel or a box that holds 2,173.5 inches. Am I right, gentlemen? It is true that their apples are packed in by hand; it is true that on a demonstration on specially packed apples they can get a scant bushel out of their box; but the average box to the trade, that is, taken all over the country, the grocery people will tell you, from Colorado east and down into the farthest town in Texas, is not a bushel, and that it is an impossibility to handle these boxes and sell them by measure with the expectation of getting 4 pecks out of a box, not a bushel. My argument is simply this, that as their industry grows in the Northwest, and as their plantings indicate that it will grow, the time is coming when they can not successfully market their apples in the East, and in the territory in which they go to sell them on the fruit stands for a nickel apiece, three for a dime, or six for a quarter or by the dozen, they have got to meet your housewife and my housewife in the peck measure and the measure that other apples are sold in, if they are going to have their increased output absorbed; and if a package a little different in size will do that, it is in their own interest, it is in the interest of their own pride, to widen their markets, to give something that can be measured out and can be handled by the average grocery men in the country, and they will get paid in proportion, gentlemen, to whatever they give. The dealers are not asleep to the situation.

The man that buys a box of apples to-day knows that he can not measure 4 pecks out of it to the trade and give them the measure that the trade demands. Whenever they give something that will measure out 4 pecks, they will widen their market and help themselves.

Now, our bill provides for 2,342 inches to the bushel. That is a compromise, gentlemen. It is true that the Winchester bushel is 2,150.4, as they argue, but who ever heard at all of apples being sold that way. That is the 8 gallons of wheat; that is struck measure. There is a table in every arithmetic in the land, as I remember, and it says that you must put one-fourth on the top in measuring fruits and vegetables and things of like character. You add one-fourth and you have got 2,688 inches, and that is what makes an honestly rounded up measure of potatoes, apples, corn, and produce of that kind. Two thousand three hundred and forty-two inches does not do it. But there is the bulge in the box.

These apples are not laid in loosely; they are laid in by hand and they are pressed in, and there is a bulge in the box, and with the care in packing that the gentlemen from the West use, you can measure up 4 respectable pecks, if you will increase the capacity of that box about 170 inches. There are not three times as many cubic inches as I have mentioned in a barrel. There are not 3 dry bushels of the size that I have indicated in a barrel. But we pack barrels on the same principle that I have indicated they use in packing boxes. We go out in the orchard and the barrels are standing on a platform, and every half bushel that is put in they are settled with a false head on the top, and they are shaken and placed around by hand, and they are settled by force, and in that way they get them in there. But you can not take three standard boxes and fill a barrel. It will take about a half a box more to fill the standard barrel. I do not think anybody ever gave a New Yorker credit for putting 14 pecks in a barrel of apples, and that is just what happens if the box is a full bushel, because it takes three boxes and a half to fill a barrel.

The CHAIRMAN. I believe that the bill provides that the barrel shall be three times the capacity of a box?

Mr. ROTHWELL. No, sir; that is not the language of the bill.

The CHAIRMAN. I know it is not the language, but is it not the intent?

Mr. ROTHWELL. The barrel, it is provided, shall be made with a 28½-inch stave, with a head 17½ inches in diameter, and with a distance of 26 inches between heads. Now, the box, if you figure the number of cubic inches in it, represents one-third of the number of cubic inches contained in a barrel of that shape.

The CHAIRMAN. That is what I understood. Then how many boxes do you get out of a standard barrel?

Mr. ROTHWELL. You can measure 12 pecks out of a standard barrel.

The CHAIRMAN. Heaped up?

Mr. ROTHWELL. Pressed in as they are in packing. The head is taken out and the apples are loosened up.

The CHAIRMAN. I mean when the barrel is measured out in pecks, the apples make 12 good heaping pecks?

Mr. ROTHWELL. Yes, sir; they can get 12 pecks, nicely rounded. Now, there can never be uniformity unless somebody gives way. There are propositions, as I understand, to have three different sizes of boxes; and, mark you, if you please, the dimensions as provided for in this bill are not the dimensions of any box that is in general use, and it will be found to be practically a compromise of them all. As I understand it, the box of Colorado is quite a bit larger than the

box of California or Oregon, and perhaps there is a little different shaped box in California and Colorado. Of this I am certain, that the box of 2,342 cubic inches which is provided for in this bill is somewhat different from any of the several different sizes of boxes which are used in the box districts. We do not have uniformity within any territory. We find barrels made up in the Hudson River section with 17½-inch heads with the same length of stave. Then we come down in the section of Virginia, a little below where Brother Lamb comes from, and we find a 27½-inch stave, the staves an inch short, but the heads of the same size. This shows that we have got to standardize in the barrels just the same as we standardize on the boxes.

Now, if the people in Colorado want to use their own box they can still use it. If the people of Oregon want to use their box, they may use it. But they must designate, in respect to this bill, if it becomes a law, how many cubic inches the barrel does contain. They can say "A standard Colorado box of 2,173 inches," and they can print in as large letters as the box will hold on top the words, "Bushel box," and see whether they can make the grocer believe it or not. That has not been his experience.

The CHAIRMAN. It was suggested here this morning that if the grower did not want to brand his apples, as provided in this bill, he could ship them into interstate commerce in any kind of a box.

Mr. ROTHWELL. He can.

The CHAIRMAN. Or in any kind of a package?

Mr. ROTHWELL. Or any kind of grade.

The CHAIRMAN. That is your understanding?

Mr. ROTHWELL. Yes; it is only when you bring yourself within the provisions of the bill that you have got to act upon it.

Mr. WAGNER. I do not believe Mr. Rothwell fully understood the question. I believe Mr. Rothwell agrees that the bill is mandatory as to the cubic contents of the package.

Mr. ROTHWELL. Yes.

Mr. WAGNER. And optional as to grade?

Mr. ROTHWELL. Yes; but if it is a short box the packer must so mark the box, as prescribed by law.

The CHAIRMAN. Then you evidently misunderstood my question.

Mr. ROTHWELL. I did, if it covers it in any other way than that.

The CHAIRMAN. My question was whether this bill would prohibit the use in interstate commerce of boxes of a different capacity, or packed in a different way, provided the grade was not marked on the box.

Mr. ROTHWELL. No, sir. I think, so far as the package is concerned, that it is mandatory; except, if you do not use the standardized box or barrel, or its equivalent, you must either brand upon your package the number of cubic inches that it does contain, or if it is less in capacity, say "short box" or "short barrel."

Mr. HAWLEY. It practically outlaws all except those mentioned in the bill?

Mr. ROTHWELL. No; I do not see that it outlaws them. But your box apple would be on the same basis with his barrel apple in the East. You people are not deficient in grading, you are deficient in giving enough stuff. You use the other box because it pays you to use it, that is all.

Mr. HAWLEY. On all the boxes from our section of the country the number of apples in the box is stamped or branded with a stencil, so that anyone buying that box of apples knows absolutely what number of apples he gets.

Mr. ROTHWELL. I do not know that I understand your question.

Mr. HAWLEY. I say anyone buying a box of apples coming from the State of Oregon will know exactly what he is getting, because the number of apples in the box is stamped on the box, outside.

Mr. ROTHWELL. That is true.

Mr. HAWLEY. There would be no deception in that?

Mr. ROTHWELL. Suppose there was "200" printed on the box, how would he know whether they were 200 of that size [indicating small apple] or 200 of a larger size?

Mr. HAWLEY. You could not get 200 of a size larger than a certain size in that box. There would be 100 in the box if they were of this size [indicating apple], or 200, or some other proportionate number, if they were that size [indicating another apple], or larger or smaller, and you would know exactly how many apples you were getting, and the size of the apples.

Mr. ROTHWELL. When a box goes on the market, it is true you have branded on the box the number of apples, and a man can see the size of them, and to that extent he knows what he is getting; but he can not take the average box and measure them out and handle them in the regular course of business as he does the apples from a standard barrel, and get the same proportionate results, if you base the box on one-third of a barrel.

Mr. HOWELL. The same rule that has been adopted by the apple growers of Washington and Oregon I believe is adopted by the orange growers of California, in the marking of their packages of oranges. They mark on their boxes the number of oranges that they contain. What objection have you to that system of doing business?

Mr. ROTHWELL. The only objection is this, that when you come to standardization, if you give Oregon and Washington the particular box they are asking for, then California and Colorado and the other box-apple districts will come and say: "Well, why is not our box just as good?" If you are going to have a system, and there are three or four different sizes of boxes used, you can not adopt all of them. You have got to get it down to some regulated size, and with this size the contents of the box as set out in this bill would be about a compromise between the Oregon box and the Colorado box; and when you standardize the barrel as is provided in this bill the box is substantially one-third of the cubic contents of that barrel. Therefore, whether I bought three boxes of apples or bought a barrel, I would be buying the same quantity, and the apples would measure up in the same proportion to the trade. In other words, the trade could take a measure and sell the apples out by measure on the same basis from the boxes and from the barrel, and have the same results. The dealer can not do that with the shorter box.

The only objection, as I understand, or as I have always understood, that is being made to this bill, is on the size of the package in the West. They grade their apples and size up their apples, and when you come back to the eastern fellow he says you are tramping on his toes in the matter of grading. You have got to standardize the eastern fellow, like my old friend Louis Erb. I suppose every

member of this committee has a letter from Louis Erb. He is opposed to the bill. All we are doing is, we are saying to Uncle Louis, "You can not put a facing of A, B, and C apples on the top and bottom of your barrel, and then fill up in the middle of the barrel with cider apples; or, if you do, you must put them out as what they are." Now, we are going to make these New York people that are robbing the people every day on us—not because they have had any change of heart—under this bill be honest, simply because it is going to be to their advantage to be honest; because it is going to put dollars in their pockets to be honest. The southern markets are flooded to-day with New York apples, with faces on the top and bottom, with a bushel to two bushels of crabs in the middle, and when you send your children to the grocery men to get apples, that is the kind they bring home. Now, we want to stop that, and the provisions of this bill will stop it, if the bill is passed into a law. There has been more money than ever before gotten by false pretenses by the apple packers this year. They had just about enough good apples to face and top their barrels, and put their cider apples in the middle of the barrel, and they have completely robbed the cider mills and the canning factories out there, until they can not run. Now, we want to give them a chance; we want to give the cider-mill people and the canning people a chance to do some business.

Mr. HAWLEY. Have they any law in the State of New York regarding the marking of apples?

Mr. ROTHWELL. I think not. I am not a resident of New York, but I do not believe they have. My understanding is that they have a standard barrel, and you have got to mark the barrel short if it is not of the capacity, practically, which is provided in this bill. But there is no law against them robbing the public by putting the cider apples and canning stuff in the middle of the barrel; and we want such a law, and we hope to get it in this Congress.

Gentlemen, whenever this bill is passed the gentleman whose letter I have read from is not going to be injured as badly as he thinks he is going to be. Here is an average complaint. Look at this a minute, and then I am through. He says:

This bill is not made in the interests of the great apple-consuming public.

Now, he simply makes that as an assertion. He does not give any reason for that. We say that it is in the interest of the public. There is one thing sure about it—this fellow can not pack his apples as he has been packing them. Now, whether it is in the interest of the public to let him pack them as he has been doing, or to make him pack them as provided under this bill, there is no question. And who would be benefited by this; would not the public? He says:

It would prohibit a majority of the apple growers from marketing the greatest amount of fruit they raise.

If the greatest amount of fruit that this fellow raises would be rejected by branding it under this bill, he had better turn those orchards over to somebody else. He must use the standard package if this bill becomes a law; but when it comes, he can put anything in the barrel that he wants to. He can deceive the public, if the public will permit themselves to be deceived, in the future, just as he has done in the past. But when reputable men who want to build up the business put the brand "U. S. Size A," or whatever it may be, upon

this package, this gentleman must do the same. He is just like my friend from Oregon, who does not want to put "short box" on his package, but he will have to do it if there is a standard box adopted that is different from his box in size.

But our Oregon brethren will come in with the eastern brethren, and they will make the box the same size because it will not pay them to make it a different size. Just so with this man; if he has got A and B and C apples, he will mark them A and B and C; and when you see a barrel of apples on the market marked in that way, you will know that that is what the apples are. After this bill becomes a law it will not be three months before the dealer, when he looked at a barrel of apples and saw that it had not these marks of standard size on it, would see, just as plain as if it was printed on there in letters 2 inches long, "Take warning." And that fact, that the absence of the standard brand was a warning to the world, to the purchaser, would be something that he would become familiar with inside of three months, throughout the entire length and breadth of this country.

Now, gentlemen, if a bill of this kind should become a law who would be injured by it? I have talked from the standpoint of the apple grower and the apple packer.

Mr. WHISTLER. If the absence of this brand is a warning against the use of any apple, it will drive that apple out of the market. As these standards only apply to the first-grade apples, as we have been given to know that they would, under what conditions could we sell our second-grade apples, our "Choice," which we have been told often come down here and compete with your first grades, when we have to put this big sign "Warning" right over them?

Mr. ROTHWELL. Your seconds, my brother, will have to sell for what they are, and what they ought to sell for. They will sell for seconds. They are seconds, and they will sell for seconds, and the consuming public will know that they are seconds, and only pay for seconds when they buy them.

Mr. HAWLEY. Do you think it is fair in establishing grades of apples in the United States to make the very largest size recognized by the Government the size of those smallest ones there [indicating apples]? This is the very largest United States standard size provided in the bill [holding up paper disk].

Mr. ROTHWELL. Now, ask me the question. In other words, do you mean to say—frame your question, and do not say "that size." Put it the size that the bill provides for.

Mr. HAWLEY. That is $2\frac{1}{2}$ inches [holding up paper disk].

Mr. ROTHWELL. What is the question, please?

Mr. HAWLEY. Do you think it is fair to the different sections of the country growing apples, that an apple no bigger in cross-section diameter than the $2\frac{1}{2}$ -inch circular paper which I hold in my hand, should be the very largest United States standard grade recognized in the law?

Mr. ROTHWELL. I think anything is fair that puts everybody on the same basis.

Mr. HAWLEY. Well; very well. Why not make that $3\frac{1}{2}$ -inch apple "U. S. Size A," this 3-inch apple "U. S. Size B," and so on? Everybody is exactly on the same standard, if they produce the goods.

Mr. ROTHWELL. How is that?

Mr. HAWLEY. I say if we make the $3\frac{1}{2}$ -inch apple "U. S. Size A," and discarding the quarter-inch differences, make the 3-inch apple "U. S. Size B," and the $2\frac{1}{2}$ -inch apple "U. S. Size C," everybody will be on the same basis, if they produce the goods.

Mr. ROTHWELL. Yes, sir; that is true.

Mr. HAWLEY. Why not do it?

Mr. ROTHWELL. Well, my idea of it is this: I do not know that there would be any very serious objection to that, but it has been recognized by all apple packers in the East, where a very large percentage of fruit has been grown, and where it practically all was grown until recent years, that an apple $2\frac{1}{2}$ inches in diameter—

Mr. HAWLEY. But this law is to apply to the entire United States.

Mr. ROTHWELL. That is true. Let me finish. You asked me a question, and I would like a chance to answer it.

Mr. HAWLEY. Yes, certainly.

Mr. ROTHWELL. The reason I think that is in the bill is because of a long-established usage of a $2\frac{1}{2}$ -inch apple. I have been in the business twenty-five years, and twenty-five years ago, where an apple was otherwise ripe, of proper shape and color, and it was $2\frac{1}{2}$ inches in diameter, it was recognized as a No. 1 apple. This bill was simply adopting what had been the general practice for twenty-five years.

Mr. HAWLEY. But if the facts in the trade differ from the local practice of New York, we will say, the bill being to apply to the entire United States, it ought to recognize the facts as they exist, and not enact an inequity or an inequality into law.

Mr. ROTHWELL. You have asked me a question. May I ask you one now?

Mr. HAWLEY. Yes; sure.

Mr. ROTHWELL. Suppose that this bill becomes a law, how would a man who grows $3\frac{1}{2}$ -inch apples be injured by it?

Mr. HAWLEY. Because the highest United States standard apple is the $2\frac{1}{2}$ -inch apple, and the law does not know any larger apple.

Mr. ROTHWELL. Yes, it does.

Mr. HAWLEY. It does not recognize any larger.

Mr. ROTHWELL. Yes, it knows that that is the minimum, but it does not recognize it as the maximum.

Mr. HAWLEY. That is the largest sized apple recognized by the law. The maximum is $3\frac{1}{2}$ inches, and the minimum is $2\frac{1}{2}$ inches.

Mr. ROTHWELL. I beg your pardon; you have not read the bill properly.

Mr. HAWLEY. If you can find any provision for a $3\frac{1}{2}$ -inch apple in this bill, I would like to see it.

Mr. WAGNER. I would like to call attention to the fact that the gentleman's statement, like all criticisms of the bill, shows a misconception of the bill. The bill provides that the minimum standard shall be $2\frac{1}{2}$ inches. I would like to ask the witness, if the law were to fix a standard of $3\frac{1}{2}$ inches or 4 inches for size A, whether it would not be class legislation, in that that law could be complied with only in very favored sections of the country?

Mr. ROTHWELL. My answer to that is that throughout the apple-growing sections of the country, where from 75 to 80 per cent of the commercial apples are grown, to make standard A's and the minimum size in that package above $2\frac{1}{2}$ inches would work an injustice to that larger percentage of the business of production.

Mr. HAWLEY. How will it work an injustice if they are allowed to class their apples according to the size produced? This is fixing a law for a long period of time, and the quality of the production will probably shift in that time.

Mr. ROTHWELL. Now, let me answer that question; you have asked it. As I said before, you started off with a wrong idea of the meaning of the law. When you put the question to me before, you assumed that that was the largest apple you would get in, instead of the smallest. Now, when you do that—

Mr. HAWLEY. I want to ask you one more question. I have not been able to find in the law a grade providing for $3\frac{1}{4}$ -inch apples, recognizing that particular result of industry, scientific culture, and care.

Mr. ROTHWELL. I find it in the bill—I think I do. I find it in the grade where it provides that A's shall be apples not less than $2\frac{1}{4}$ inches in diameter. There is where I find it. There is where you get your $3\frac{1}{4}$ -inch apple in your package, and you must not put anything less than $2\frac{1}{4}$ inches in that package.

The CHAIRMAN. Let me suggest this illustration. The apple you hold in your left hand is perhaps $3\frac{1}{4}$ inches in diameter?

Mr. ROTHWELL. Yes.

The CHAIRMAN. And that in your right hand is about $2\frac{1}{4}$ inches in diameter?

Mr. ROTHWELL. This one is [indicating apple].

The CHAIRMAN. Yes. Now, the apple in your left hand will sell for more on the market, I presume, than the one in your right hand, and yet in a box, under this bill, they would both be branded the same way. The purchaser of the box which is tightly closed, so that the apples could not be seen at all, would have no way of knowing by the brand on the box whether he was getting apples that were $2\frac{1}{4}$ inches in diameter or $3\frac{1}{4}$ inches in diameter. The question Mr. Hawley, I think, is trying to get your answer to is whether that fact would not penalize the seller of the large apples?

Mr. ROTHWELL. I think not. He could mark on them " $3\frac{1}{4}$ inches," if he wanted to. He can brand his apples to show they are larger. But under the bill if he brands his package of apples "U. S., Size A," the apples in that package must come up to the grade. That does not prevent him from marking his apples what they are.

The CHAIRMAN. But the bill provides that apples shall be marked "U. S., Size A," when the minimum is not below $2\frac{1}{4}$ inches. There is not any provision in the bill whereby apples of a larger size can be branded so that the buyer can be put on notice.

Mr. ROTHWELL. So that the buyer can be what?

The CHAIRMAN. Can be put on notice.

Mr. ROTHWELL. Now, in the first place, I think that that regulates itself. If you are going to pack apples in boxes, you are going to pack them in tiers; you are not going to pack those two kinds of apples in the same box. It is an impracticable proposition.

The CHAIRMAN. Let me put this to you. Suppose here is one box with apples uniformly of the size of that larger one [indicating large apple], and here is another box containing apples uniformly of the size of the smaller one [indicating smaller apple]. Under the bill both those boxes would be branded with precisely the same letter.

Mr. ROTHWELL. They would not, if I put them up.

The CHAIRMAN. Yes; but under this bill they would be given the same brand. How would the buyer know which box contained 2½-inch apples and which contained 3½-inch apples? Would he not pay the same price for both boxes?

Mr. ROTHWELL. I think not. I think this, that there is no man who would be so absolutely foolish, if he was putting up something of a superior quality, as not to demand more for it and get more for it. The purpose of this bill, and the effect of it, is simply that you can not put stuff below a certain grade onto a customer.

Mr. HAWLEY. But if the provisions of the bill materially differ from the facts in the production of apples, if the bill is to become a law, ought it not be so amended that it will be fair to everyone?

Mr. ROTHWELL. I do not concede that it is not.

Mr. WAGNER. Mr. Chairman, I would like to point out that there is no provision in the bill for marking the number of the tiers or the count of the apples, just as it is done at the present time. In the proposition that was submitted by the chairman a few minutes ago, a box of apples of the size indicated, while marked "U. S. Standard," would also bear the mark "3½ tiers," and they being No. 2 apples, that would designate the size. Further than that, no such apple is ever sold where the customer is warned without an inspection as to size, quality, and condition.

Mr. HAWLEY. Well, Mr. Chairman, that is the very point I am contending for. These gentlemen all say that there can be put on the box additional marks descriptive of the apples; but when we are enacting a law or purporting to enact a law relative to the grading of apples, why not put all these things into the law, and recognize all these grades and all these differences, instead of saying that there can be exceptions made? Why not go the whole length of doing justice, and enact the law according to facts as they actually exist?

Mr. WAGNER. Are you not overlooking the fact that aside from the few specific provisions of the bill there is no prohibition against doing almost anything you please?

Mr. HAWLEY. We are not proposing to enact any law, but so far as the State of Oregon is concerned, it has enacted such laws as will protect its purchasers. So far as protection is concerned, we have done everything we could. The name of the shipper is on the box, and the name of the packer is on the box and the kind of the apple and the grade, and the number of apples in the box; and if every State would do the same, if New York had done the same years ago, we would not now be asked to suffer for the sins of the New York people.

Mr. McDERMOTT. What per cent of the crop of apples in the United States is over 2½ inches in diameter?

Mr. ROTHWELL. That depends entirely upon the sections in which the apples are grown, what their weather conditions have been, and so forth.

Mr. McDERMOTT. About what per cent each year of the total apple crop is over that size?

Mr. ROTHWELL. In the commercial orchards in the East, I should say 60 per cent. In the commercial orchards in New York State, under ordinary conditions, 65 per cent, depending on the variety of apples grown.

Mr. PLUMLEY. In saying 65 per cent, do you mean that they are under 2½ inches?

Mr. ROTHWELL. No, sir; that they are over 2½ inches, under usual conditions. Down through the Virginias, outside of the varieties of Winesaps, take their York Imperials and Ben Davis, the most of them they raise there, a large per cent of them, are over 2½ inches.

Now, I want to answer the gentleman from Oregon, from my own experience, on the proposition that he makes. I packed and marketed this year something like 150 or 155 carloads of the brand of apples I put out under the name of the "Gold Medal Brand." If this bill becomes a law, while I will put on those packages "U. S. Size A," I will not discard the "Gold Medal Brand" on them, any more than your men out in Washington and Oregon whose brands are on the market will stop using their brands in addition to the government brand which shows that they are up to the requirements of this statute.

Mr. HAWLEY. Why not, then, make the statute meet the situation?

Mr. ROTHWELL. I think it is not practical, for this reason, that if you are going to have a 3-inch size, you might as well go to a 3½-inch size, and then you would have too many sizes. You will protect the public, you will protect the people from being defrauded, in the future and in the past, whenever you pass a law that says you can not mark an apple less than that standard size and quality.

Mr. HAWLEY. But is it not equally right that the producer should have his rights protected?

Mr. ROTHWELL. The producer is not deprived of that right.

Mr. HAWLEY. It is evident that we can not agree, and we will have to agree to disagree.

Mr. ROTHWELL. No; if the gentleman from Oregon insists on the small box, we can not agree, that is true.

Mr. BEALL. This bill provides for three grades of apples, A, B, and C?

Mr. ROTHWELL. Yes.

Mr. BEALL. Now, instead of having three grades, would it not be practicable to have five grades, A, B, C, D, and E; A grading not less than 3½ inches, B grading not less than 3 inches, C not less than 2½ inches, D not less than 2 inches, and so on?

Mr. ROTHWELL. I believe that if the gentleman knew what a small percentage of the apples grown would be packed under the higher size, he would not think it advisable to do that. That is my reason for it. Here is an extreme case. What is this, a Wolf River [indicating large apple]?

Mr. WAGNER. That is a Stayman Winesap.

Mr. ROTHWELL. The brethren in the West do not grow all of them that size. Let me ask the gentleman from Oregon what percentage of your apples are that size? I do not mean of this variety, but I mean the total output, counting all varieties; what percentage of your total crop is that size [indicating large apple]?

Mr. WHISTLER. About 30 per cent.

Mr. ROTHWELL. Mr Gibson, what is your experience in the West?

Mr. GIBSON. I should say from some sections the gentleman's statement is practically correct. In southern Oregon there is not that large a percentage that grows that size.

Mr. ROTHWELL. What about Colorado and California?

Mr. GIBSON. In California they probably grow 10 per cent that size; perhaps not that many.

Mr. ROTHWELL. What about Colorado?

Mr. GIBSON. I would think Colorado would grow 15 to 20 per cent of that size.

Mr. ROTHWELL. In New York State and Michigan, how many?

Mr. GIBSON. In Michigan they would probably have 10 per cent, and in New York probably 10 per cent of that size. I do not believe there would be over 10 per cent.

Mr. WHEELER. How about Washington?

Mr. GIBSON. About 30 per cent; close to that.

Mr. HOWELL. In Utah what per cent of the apples grown would be of that size?

Mr. GIBSON. About 15 or 20 per cent.

Mr. WHISTLER. How about Missouri?

Mr. GIBSON. I should say less than 10 per cent.

Mr. WHISTLER. Is not that the average size of the Ben Davis apple in southern Missouri?

Mr. GIBSON. No, I think not; not of any that I could ever buy.

Mr. BEALL. If there were 10 or 15 per cent, as these gentlemen testify, in New York and Michigan, and in some other States as high as 20 or 30 per cent, or if as much as 10 per cent of all the apples grown in the United States are of that size, is not that of a sufficient quantity to entitle them to a distinctive grade?

Mr. ROTHWELL. The eastern apples, east of Colorado, are practically all packed in barrels and not in boxes, and everything that is classified and goes for a No. 1 is put in that barrel. The application of the principle we are talking about now would mean nothing east of Colorado, where 75 or 80 per cent or 85 per cent of the commercial apples of the country are grown.

Mr. BEALL. Would it do any harm east of Colorado, as it is, to have an increase in the number of grades?

Mr. ROTHWELL. In my judgment the greater the number of different grades you get, the more confusing you make it, that is all. The three grades you have in the bill were a compromise. The eastern fellows wanted a smaller size. My own judgment was against having more than two grades, A and B. I do not believe we should have had more than two.

Mr. TAYLOR, of Colorado. Just a suggestion in answer to the gentleman from Texas. So far as Colorado is concerned, I would not object to that kind of proposition, but no such bill as that could be put through the House, for this reason, that it would practically put the eastern apples all in a certain class, in the third class, and it would depreciate the value of their crop enormously, and they would seriously oppose that kind of a bill.

Mr. POINDEXTER. Will the gentleman let me ask him a question in that connection?

Mr. TAYLOR, of Colorado. Yes, sir.

Mr. POINDEXTER. If the eastern apples are in a certain class, as a matter of fact, why should not the law put them in that certain class?

Mr. TAYLOR, of Colorado. They may be first-class in quality and yet not in size.

Mr. POINDEXTER. Certainly; but we are now speaking of size only.

Mr. TAYLOR, of Colorado. Well, this law provides for a minimum size, so that the apples of these other States that grow a small apple

would be all put into the same grade. So far as Colorado is concerned, we want a larger box. Our box is 100 inches larger than any of them.

Mr. NEWELL. This bill proposes to absolutely standardize everything; and yet, according to this standard, it cuts all of our fancy fruit out of recognition as of standard grade at all.

Mr. ROTHWELL. Well, I can not see how you can put that kind of a construction on it. As I said when I started out, with reference to the statement that was made in that letter, I only want a minute or two more, and then I will conclude. I was drifted off from that. Let us get the idea entirely out of our heads that when we get letters from a fellow saying that it will prevent him from marketing his apples of a certain size or that it will prevent him from marketing any part of his apple crop that that really means anything. That gentleman ought to be notified that he is laboring under a misconception of the law. We are talking now about grading. He can mark his apples any grade that he desires to, but if he wants to mark them "U. S. Size A" or "U. S. Size B" or "U. S. Size C," agreeably to the provisions of this law, he must grade them that way; but it is entirely optional with him. He can continue in the way he has continued for years, except that he can not use as a recommendation of his package the standardization brands unless the apples comply with the standard. That is all there is to it. It is entirely optional with him which he will do.

As I said before, force of circumstances will compel him to put up a United States standard barrel of apples, because it will pay him to do so.

Then, as I started out to say, I say that it is in the interest of the grower because it will pay him, and it will put an end forever to these objectionable things in the apple trade. The commercial grower perhaps represents one person out of 500 in the business world. The other 499 people are consumers. It is a benefit to the majority of the growers. What about these other 499 people? It is certainly a benefit to every one of them, when they buy a barrel or a box of apples; and it is a benefit that the storekeeper has gotten the kind of apples that is respectable, so that he can send you, when you send your child to the market, a peck or a half a peck of good apples. It is not only in the interest of the one grower, but it is in the interest of the other 499 people out of the 500, as well as of the grower himself.

The CHAIRMAN. Do you wish to address the committee, Mr. Taylor?

Mr. TAYLOR, of Colorado. I wanted to make just a brief statement.

STATEMENT OF HON. EDWARD T. TAYLOR, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO.

Mr. TAYLOR. I expected, Mr. Chairman and gentlemen of the committee, that there would be some representatives here of the Colorado Apple Growers' Association, but for various reasons they have failed to get here. I do not appear before the committee at all as an apple expert, and I do not know anything about the technical part of the matter, although I own a couple of little orchards myself. I took this matter up with the apple growers of Colorado soon after this session of Congress was convened, and at first there was some objection to it. They had meetings through the State. You probably know

that we have the standard Colorado box, which contains 2,442 cubic inches, which is 100 cubic inches larger than this standard that is attempted to be set by this bill. After our fruit growers had gone over the matter very carefully, they unanimously, so far as I know—I do not know of any objection throughout the State of Colorado—indorsed this bill, and from all over the State they have instructed me to say to this committee and to Congress that Colorado indorses this bill in the interest of fair dealing and in the interest of uniform custom, and so that there may be standardizing and system in the handling of fruit, and that there may be a premium upon the breeding up of good fruit.

Colorado is a new fruit-growing State, it is true, but at the same time we are coming to the front pretty rapidly. I have not the authority for the statement, but I understand from newspaper reports that we shipped 8,000 carloads of apples this year. I also understand that is more than was shipped by the three States of Washington, Oregon, and Idaho put together. Whether that is true or not, I do not know. I also understand from newspaper reports and other reports that the little county of Delta, adjoining where I live, shipped more apples than any other county in the United States during the past year. So that we are getting on. I should say that three counties in Colorado shipped more fruit than the whole State of California, so that we will be on the map soon, if we are not now. But we are raising a fine grade apple, and our people are using the latest improved systems, and they expect to top the market of the whole world. We sent a carload of apples a few days ago to Australia. Mesa County, adjoining the county in which I live, shipped 385 carloads of apples to the State of Texas last year. We believe that this bill is in the interest of honesty; that is all there is to it. We think it is a fair bill.

We think that the people of the United States who buy, as well as the man who is trying to breed up a satisfactory quality of apple, are entitled to recognition and to know what they are getting, and when the grower sends out a carload of apples with a certain brand on it as coming from our territory, we want to know that they will be accepted at their face value all over the world. That is what we think about it, and in that light, believing that it is along the line of standardizing everything, you might say, and of subjecting ourselves to the severest tests that the law may be disposed to impose, Colorado is in favor of this. I understand that it is a compromise, that it increases the Oregon box about 168½ inches and it reduces our box about 100 inches, so that, as I say, it is a kind of compromise between the two. That may not be exactly correct, but that is what I understand; that is what is reported to me. All I desire to say is that Colorado can get along all right enough. We are establishing a reputation so that we can compete with the world, but at the same time we believe that it would be better for everybody—we believe that it would be better for the fancy fruit growers as well as for the consuming public and everybody—if this law were enacted.

The CHAIRMAN. Mr. Taylor, do you consider that it would be a hardship upon the grower of large apples to allow this bill to stand as it is?

Mr. TAYLOR, of Colorado. My idea about that, Mr. Chairman, is this: I think that where a man grows Wolf River or some of the

other fancy large varieties, such as they grow at Grand Junction, in Mesa and Montrose and Garfield counties, Colorado, if they would put the number of layers or the number of apples, or something else, on the box besides the "U. S. Size A," so as to show the superior quality, in size at least, of those apples, that would accomplish the purpose. I think, so far as Colorado is concerned, that it would not hurt us to have five grades, because I think we would get the largest per cent of the high grades in the whole world, but in these sections in the east where they do not grow over 5 per cent of their apples above the Size A, it would put all their apples in the second class, and I do not believe we could ever get an approval of that bill in this House, because it would be discriminating in favor of the many and against the few. I do not think that would hurt the gentlemen in the Northwest, because they raise some big fine apples out there.

I think it would give us an advantage over the others, but I do not believe they would support that kind of a measure, because it would put their apples in the second class, almost all of them. I think we will have to submit to some compromise in this matter if we are going to standardize the apple business, and I think we will have to do something with the apples larger than the "U. S. Size A," to show that they were superfine or extra good or extra large, or something of that kind. That is the way it appears to me, from my knowledge. I live right adjoining the territory where these apple growers are, and I know a good many of them who make \$1,000 to \$1,500 an acre a year off of their apples, within a few miles of my home. I have here a picture of some of these apples; probably some of you may have noticed them. That is the way they look in a box [exhibiting picture]. There is only a very small number of them in a box, and they send them all over the country. We sent a box a few days ago to President Taft. I think there were 50 apples in that box, and they filled it full. That is the quality of apples we are growing, as I say, and the men who grow those apples will have to do something else to show superior quality of their fruit, if this law passes. But the great mass of the growers will be benefited, I believe.

Mr. WAGNER. Mr. Chairman, just one statement with reference to the larger number of grades suggested. I would say that the more the number of grades is multiplied, the greater the expense of packing and grading would become, and the expense would become prohibitive from that one point of view.

With the statements that have been made and with the documents which we have submitted here, as the proponents of this bill, we will here close.

The CHAIRMAN. The committee will now hear from any gentlemen who are opposed to the bill.

STATEMENT OF HON. ARTHUR P. MURPHY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MISSOURI.

Mr. MURPHY. Mr. Chairman, I come from an apple-growing section of this country, from south central Missouri. We have orchards there of as much as 1,000 acres. The matter of baskets and boxes does not affect my country or my district, because our apples are mostly, if not entirely, shipped in barrels. Within that district lives Louis Erb, who was referred to a while ago by the gentleman who

preceded me. He said, "We are going to make Louis Erb honest." I know Louis Erb. He has an orchard of 1,000 acres; and I will compare him for honesty and intelligence with any member of the International Apple Shippers' Association.

At the outset I want to say that when men come advocating certain legislation we ought to see who is back of it first. The statement was made by the gentleman that 99 out of 100 apple growers did not know their business—did not know what they were doing. He also intimated that in putting up these packages they were dishonest, that they put cider apples in the center of the barrels, and so forth, which I do not think ought to be injected in here; because when I analyze this bill to you it will show to you that it is only placing a club in the hands of this association, which is back of it, so that they can hold up and rob the man who grows the apples. What is this International Apple Shippers' Association? Has it been demonstrated to this committee or has it been given to this committee what their purposes are? What do they do? Has it been detailed to this committee? I have tried to keep in touch with these hearings all of this time by men who have been here, because I could not be here myself, having other duties, and I have inquired continuously what was the purpose of this International Apple Shippers' Association. Are they philanthropic gentlemen who are interested in the welfare of the consumer, who are after the interests of the consumer? If so, when they talk about making the size of the apple, 2½ inches, the limit for grade A, and when they say a 3½-inch apple forms 10 per cent, to put it at the lowest, of the apple crop of this country, then why not make the 3½-inch apple the standard for Size A, and give the consumer the benefit of it, if size is to form the basis of your grades? The question that Mr. Beall asked the secretary of this association was, Why not make the 3½-inch apple the standard Size A? and he answered that it would affect the eastern people.

In other words, they want this class of legislation passed creating a standard apple of size A, so that if a man goes to purchase a standard apple you will say to him, "We will give you a standard A apple; here it is with the 'A' on it, and you take this, because it is the best apple, it is the standard, and the Government is back of it." But I want to find out, if I can, what is the purpose of this association. They are not in the business for their health, and if this bill passes—and, as I say, they are here backing it and pushing it—they will reap financial benefit from it, and that is all there is to it; and at whose expense? Section 3 of the bill reads:

SEC. 3. That the standard grades for apples which shall be shipped or delivered for shipment in interstate or foreign commerce or which shall be sold or offered for sale within the District of Columbia or the Territories of the United States are as follows:

Under this bill you can not sell an apple in the District of Columbia that is less in size than 2 inches. The members of this association are engaged in buying and shipping apples. That is their business. I will not say that they fix the price of them, although I believe that they do.

The next paragraph of the bill applies to "Apples of one variety which are well-grown specimens, hand picked, of good color for the variety, normal shape, practically free from insect and fungus injury, bruises, and other defects, except such as are necessarily caused in

the operation of packing," and so forth, and names the three sizes. Now, these gentlemen will go out to an orchard in my country or any other country to buy apples.

We will make a contract as they do now for No. 1's, and so forth. We will pay you so much for Standard A on the tree; we will pay you so much for Standard B; we will pay you so much for Standard C. When they go out and pick the apples, I guarantee you that you will find very few Standard A's that they will pick off the trees there, but they will bring them within the other limits. That is one club they would have.

Another one that is used now is for growers to ship a carload of apples to these gentlemen, or one that represents them, or is working in connection with their association. The apples are shipped probably in one or two or three carloads, and they are marked "Standard A." When they get down there, as they have been marked "No. 1," they would say, "We have examined these apples and they do not come up to Standard A under the law." They go to the apple grower and say, "You have violated the law; we can not sell these apples, and it will be our duty to call this to the attention of the Government, but if you want to take a certain price"—which is below that which they ought to pay or which the grower is entitled to—"we will scratch off these numbers and brands from these boxes and pay you that price and let them enter the market." So they get them at a reduced price, and you will find that the brand will remain on them just exactly the same.

Now, who is going to be the judge of the color? Who knows what a normal shape is; who is going to be the judge of that? And then, when you get down to "and other defects," who is going to be the judge and say what those defects are?

When these gentlemen produce these apples to avoid a contract of some kind, the law ought to be drawn so that they can not do that. When they go into the orchards to purchase these apples, they will say, "These apples are not of normal size"—a disagreement and a lawsuit. Or they might say, "They are not of good color," and go off on that line.

So when the gentleman asks who would be hurt by the passage of this law, I say it would certainly not be the shippers' association, but it would be the growers.

If you are going to establish a size and write it into the law that they must be a certain size, then look at it from the interest of the consumer, who is entitled to the best; and when the Government says it is going to give the consumer a Standard A, it should be the very best in the United States.

STATEMENT OF HON. MILES POINDEXTER.

Mr. POINDEXTER. Mr. Chairman, I have here a number of protests that have been forwarded by various associations, some of them shippers' and some growers' associations, against the passage of this bill, which I want to leave with the committee and to call the committee's attention to very briefly.

There are a number of gentlemen here who desire to make statements on behalf of the northwest section of the country in opposition to this bill.

I think it is evident from the hearing that has already been had that the objection to this bill is based very largely upon the proposition, not that there should not be a uniform standard or that it is not desirable to have a uniform standard, but to the selection of the wrong standard, an unjust and unreasonable standard, so far as the size of the box is concerned, if there is going to be a standard box at all. The fixing of the standard of quality of the apples is too low to be branded as the highest government standard. It has already been particularly noted here that the size of the apples in the Northwest—30 per cent of them at least, which is certainly a sufficient percentage of the crop to be entitled to be put in a class by itself—is at least an inch more in diameter than the minimum of the highest standard fixed in this bill; and I think the committee can readily see what an injury it would be to the growers in all that section of the country, who produce a crop 30 per cent of which is so much larger than the standard box in this bill, if growers in other sections of the country, who can not compete with the Northwest in this respect, are permitted to put their crops out as first grade and first standard, leaving to Washington and Oregon and Idaho growers the task of persuading purchasers and educating purchasers up to the proposition that they have an apple, which, as is admitted here, is so much superior to the No. 1 apple under the provisions of this bill. It would naturally detract from the value of their apple to create a demand for a standard apple which was far inferior to theirs, and which would tend to bring down the superior grade and the superior value of this large percentage of their crop to No. 1 grade as fixed by this bill.

Now, so far as the size of the box is concerned, I think that the statement made by the gentleman from Virginia here this morning, whom you will remember as having been a state senator in Virginia, and a large apple grower there, is not correct. Suppose that it was agreed that it was desirable to fix a standard size for the box, and the committee were engaged in determining what that standard should be. The action of the apple growers of Virginia would be one circumstance which ought to throw some light upon the subject. They met in convention, and upon consideration of the whole matter, the gentleman from Virginia who addressed the committee this morning told you that they selected the Oregon box as the best thing that there was in existence, so far as an apple box is concerned.

Now, along the same line, it has been stated and not denied here that Canada, so far as their box is concerned, has adopted the northwest special box—a box which is used commonly in the Northwest, called the "Special Northwest Box." This box is used in Idaho, Oregon—

Mr. COCKS. Could you tell us about the size of that box?

Mr. POINDEXTER. Yes, sir; I will give you the inside measurements of this special box. They are 10 by 11 by 20. The inside measurements of the ordinary box used in the Northwest are 10½ by 11½ by 18. I understand that the assertion made that the box does not contain a bushel is based upon the proposition of a heaping peck, a heaping half bushel, and a heaping bushel measurement. That is more or less indefinite and uncertain, how many apples can be heaped up, rounded up, on these various measures.

These boxes which are used in the Northwest contain more cubic inches, without any distension whatever, than are contained in a

standard bushel. Necessarily, they are always distended in packing. I suppose I know very little about the practical side of raising or packing apples, but I suppose it is necessary to have that distension, to have two or three of the boards upon the fruit in order to keep them in place and to keep them from rolling about in the box while being shipped. That increases the number of cubic inches in the box to that extent. I have heard it variously stated going as high as 100 cubic inches, in addition to the linear inside measurement of the box which, without any distension, contains something like 50 cubic inches, or 23 inches more than a bushel, without distension.

Mr. COCKS. Is that a standard northwest, a standard Oregon box?

Mr. POINDEXTER. Yes, sir.

In addition to the standard size of the apple, and the standard size of the box, there is a question as to the standard quality of the apple, as to whether it should be wormy or defective in any other respect.

Now, we are not objecting to the fixing of a standard for the quality of our fruit. What we are objecting to is the lowering of that standard. We are objecting to the United States Government giving the great authority of its action and its wisdom in fixing the highest governmental grade for the quality of apples, and putting upon the market an apple which is inferior to those that we are selling, and compelling us to compete, with our superior apples, upon an equal basis with them.

It is true that we may, as claimed by this association, brand our apples, as my friend here does. He has the Gold Medal brand, or something of that kind; but that is a special education of the trade. You have to persuade them and convince them by special efforts that you have something better than the first grade that is fixed by the Government. It is a positive injury and a positive loss to the people of the Northwest to have a standard fixed as to the quality of apples, allowing 10 per cent of defective apples in a box. I do not think that that is very honest. I do not see how this bill is in the interest of honesty. I do not think it is honest for the United States Government to say to a man, "These are put out under the brand that is fixed by the Government as first-class No. 1," and yet in that box one-tenth of them may be absolutely defective and absolutely useless for the purpose for which they are bought.

In packing apples in the Northwest every apple is examined. In many instances each apple is wrapped in tissue paper; they are packed in layers, and we object to allowing 10 per cent of those apples to be marketed as first-class apples when they are absolutely defective.

We know this bill would not be to our interest; it would be a grievous injury to the fruit growers of the Northwest. It is not to the interest of the consumer. The only interests that I can see which would be served—and it corroborates the deductions that were made by Congressman Murphy, of Missouri, as to the purposes and motives which are back of this bill—is the association which is pushing this bill. The only interests that I can see that would be served by a law legalizing the marking of No. 1 apples with 10 per cent of them defective are the jobbers and this association, because it would enable them to put upon the market as first class No. 1 fruit a crop of apples, or a shipment of apples, a great portion of which, one-tenth of which, would be defective, leaving them at the same time without any provision whatever as to the manner in which this law shall be enforced.

That would necessarily leave it very largely in the hands of the shippers themselves, giving them all the leeway imaginable to enforce the strictest interpretation of the law upon the apple growers; and it would, on the other hand, be of no advantage to the consumer.

Mr. COCKS. How would it help the shipper any more than the producer to have that 10 per cent of defective apples?

Mr. POINDEXTER. Simply because the shipper, as has been stated here, goes into the orchard; he goes there and examines the fruit upon the trees; he fixes the price very largely and determines whether he will buy these apples as first class or second class. The producer is not in command of the situation; the shipper is, to a very large extent. He packs them himself, as stated by the gentleman from Virginia. Of course, in some communities special arrangements have been made, and special associations, with intelligent officials, have been formed by growers, and sometimes they can, in a measure, protect themselves. But always, as in all the various lines of business, the middleman has the advantage, both in the buying and in the selling.

Mr. COCKS. Suppose the 10 per cent were eliminated, then who would suffer?

Mr. POINDEXTER. Why, the growers of defective apples, who want to have these defective apples marketed as first class.

Mr. COCKS. Would they not suffer and not the middleman in that case? I can not understand, from your information, how that 10 per cent is going to benefit the middleman. They are left on the tree; he does not have to take them off the tree.

Mr. POINDEXTER. He buys them as second class?

Mr. COCKS. They are second class, are they not?

Mr. POINDEXTER. Yes; and he sells them as first class, under this law.

Mr. COCKS. Why does it not help the grower just the same?

Mr. POINDEXTER. How is that?

Mr. COCKS. Suppose we eliminate the 10 per cent, would not a lot of apples be left absolutely unmarketed on the trees?

Mr. POINDEXTER. I suppose there would be.

Mr. COCKS. There certainly would be.

Mr. POINDEXTER. Certainly there would be.

Mr. COCKS. I thought so, too. But why would it not affect the producer?

Mr. POINDEXTER. It might affect a producer who wanted to sell defective apples at a high price and as first-class apples.

Mr. COCKS. I understand the whole object of the bill is to prevent the selling of defective apples.

Mr. POINDEXTER. That is the purported object of the bill. I am arguing that it permits the sale of 10 per cent of defective apples.

Mr. HOWELL. It at least legalizes it.

Mr. POINDEXTER. It legalizes it, and of course the shippers get the benefit of that 10 per cent margin.

Mr. COCKS. Suppose the producer sold these apples—picked them and packed them, and sent them to market?

Mr. POINDEXTER. Then he is in the same position that the shipper is and gets the same advantage. The consumer suffers in that case, as he does in all cases.

Mr. W. H. BAHRENBURG. How?

Mr. POINDEXTER. Simply by having put on him a box of apples marked "No. 1, Government Brand," supposed to be perfect, with 10 per cent defective apples. You can pack in this box apples of a larger size and apples of a smaller size and put them out. You can have a top layer of big apples and a bottom layer of big apples, so that upon examination, no matter which way you turn the box, you will find a 3½-inch apple, with poor ones in the middle. That is not conducive to honesty. It rather tends to encourage deception, and is to the disadvantage of the purchaser.

Mr. C. B. SHAFER. It does not prevent you from putting all good apples in the box, does it?

Mr. POINDEXTER. It certainly does not; but it puts us in the position of competing, when we do it, with inferior apples that have the government brand as first class.

Mr. C. B. SHAFER. Would you people in the Northwest accept a law guaranteeing every apple in the box to be absolutely perfect?

Mr. POINDEXTER. I think we would. I know a great many of them would.

Mr. C. B. SHAFER. I asked the question. I want to know if you would.

Mr. POINDEXTER. I can not speak for all the growers in the Northwest, whether they would accept a law guaranteeing every one to be perfect, but I believe they would. I have heard a large number of growers say they would. They take the position that when apples are put out as good apples every one ought to be perfect. They are examined, one by one, by experts, and they are put into the box in layers, and there is no reason why every one should not be perfect. I think the great majority of our growers would accept a law of that kind. I think it would be rather stringent, but I think 2 per cent would be ample margin for defective apples; certainly not 10 per cent.

Mr. W. H. BAHRENBURG. Why did your representative fight so hard for these 100 per cent of good apples when he sells his crop for first-class stock with anything but first-class goods?

Mr. POINDEXTER. In the first place, I do not know. I suppose you refer to Mr. Dumas. One instance of that character was brought out here with respect to shipments from the Northwest, by questions from Mr. Hawley, a member of the committee, this morning. I do not know anything about the facts in this matter. In fact, a great deal has been said here as to box shipments that is very largely guess-work. This matter of percentages, for instance. Questions have been asked me about the percentage of box apples from Colorado and from California and from Washington. There have been no authoritative figures produced here which show what the estimates are based upon, and there is nothing to show here, by any testimony that would be competent in any court, that Mr. Dumas ever shipped any defective apples. There is no showing what these defective apples consisted of. I suppose Mr. Dumas would have the same thing to say in that connection if he were here; but, however that may be, one swallow does not make a summer. I do not care, so far as the principles involved in this bill are concerned, if Mr. Dumas did sell a shipment of defective apples. That does not alter the case a particle. If Mr. Dumas did what he ought not to do, there is no reason why deception should be encouraged in this law, and there is no reason why the rest of the

fruit growers in the Northwest are not willing to live up to a good law, which requires practically all perfect apples in a box that are put out as perfect apples.

Mr. W. H. BAHRENBURG. But Mr. Dumas was here as the president of the Washington State Horticultural Society, if I am not mistaken, and also represented the people of the great Northwest.

Mr. POINDEXTER. Well, I hope he did not ship a carload of defective apples as representing the great Northwest, or as representing the horticultural society. He did it as an individual if he did it at all, even if he was, at the same time, an official of the horticultural society. In the first place, I do not admit the fact; but, conceding for the purposes of argument that it is true, that he did that, it does not in any way tend to enlighten this committee as to the character of the principle to be followed in the enactment of this bill. It can be used in opposition to the low standards that are fixed by this bill with much greater effect than it can be used by this association of shippers in favor of the bill.

I only have another word to say. Now, the apple industry in the great Northwest is very young. The growers have gone there under all kinds of difficulties when they first started. This industry took land that nobody supposed was good for anything, under hard conditions, some of them undergoing the deprivations of pioneer life in new communities. They began experimenting with the apple-growing industry, and they developed this industry. I will say, to their credit, that not only were they able to survive the difficult conditions under which they were working, but they set a standard for the packing and marketing of apples through all parts of the country. All the evidence throughout the country points to the fact that there is a growing tendency to box apples instead of barrel apples. Their mills are arranged there so as to make the component parts of their boxes with a certain class of machinery. They even use a certain size of these boxes as being adapted to the size of their apples. I have here the resolutions not only of horticultural associations, but of apple growers as well; and I have one here that I would like to call particular attention to, from the Spokane Jobbers' Exchange. All of these people are extensive shippers of apples. I will read a portion of this one, from the Spokane Jobbers' Exchange:

Desire to say that the members of this exchange, all of which are extensive jobbers of apples in this market, with many years of experience in the handling of this commodity and continued contact with the producer, after a careful consideration of the objects of this bill, are of the opinion that the establishment of standard packages and grades for apples will result in fostering and maintaining an industry that promises to become one of the most important in the Northwest.

It will result in the protection of the public and the expansion of our markets.

The dimensions of the packages are particularly convenient in packing and shipment, and the capacity of the packages is particularly advantageous in the computation of weights and measures, the standard box and basket suggested having a capacity of 1 bushel in measurement or 50 pounds in weight, while the barrel has a capacity of 3 bushels in measurement or 150 pounds in weight.

Now, if there is going to be a standard established, it seems to me that all reason would point to the adoption of that box which has taken the leading place in the market and has made for itself a special commercial name and reputation.

Mr. L. G. Monroe, secretary of the Washington State Horticultural Association, would like to make a statement to the committee.

(L. G. Monroe was called as a witness and, being first duly sworn, testified as follows:)

Mr. MONROE. I should like to tell you something about that great Northwest which borders upon the Pacific, its salubrious climate, magnificent scenery, vast natural resources, and the achievements of the hustling, bustling, God-fearing people who inhabit it and yet invite the civilized world to come and do likewise; but suffice it to say that in that land of sunshine and volcanic ash soil are grown the finest apples in the world. The Northwest is destined to produce more of this most wholesome and healthful of all fruits than all the rest of the world combined. In less than ten years—before another federal census—the Yakima Valley, a small area in eastern Washington, will be producing 15,000 carloads, or about 10,000,000 bushels, annually. In fact, apple growing will become the leading industry and eventually will give greater wealth to its people than will come from any other source.

The making of this great industry has been and is yet to be at vast expense and infinite labor. Fruit growing in this region has become a profession and is being reduced to a science as fast as the problems which confront the horticulturist can be solved. Irrigation has helped to bring about this wonderful transformation in apple culture in the United States, which, as you know, leads the world in all things.

It costs large sums of money to create irrigation works, and these amounts must be added to the price of the land as well as an annual maintenance fee. Then the tribute the grower is compelled to pay to the railroads because of the long distance from market—the Eastern States and foreign countries, upon which he must depend to dispose of his surplus stock—and the much higher cost of labor, all must be accounted for. Is it any wonder that good irrigated apple land must be sold at \$300 per acre, and that the apple grower was compelled to exercise more than ordinary acumen to meet conditions and that as a result he should evolve what is now recognized as a very long step in advance—the apple box, the packing of the apple in tiers, and uniform as to size and color?

The creation of what is known as the Northwest Standard apple box was not an accident nor the mandate of the Government, but was the result of many years' experimentation, discussion, and practical demonstration by the growers, the producers themselves, who after much effort secured what has proved to be suited to their needs. This box is $10\frac{1}{2}$ by $11\frac{1}{2}$ by 18 inches, i. e., $10\frac{1}{2}$ inches deep, $11\frac{1}{2}$ inches wide, and 18 inches long, inside measurement, and contains 2,173.5 cubic inches, or 23 cubic inches more than the standard Winchester bushel, and this, too, without distention of its parts. Of course, you know that the distention of its parts referred to in the Lafean bill has reference to the gradual swell from each end of the box toward the center, which is necessary to secure sufficient pressure on the apples to hold them in the exact position in which they were placed by the packer, thus rendering the chance of bruising in shipment to the minimum. No box properly packed is without this swell—this distention of its parts—and the amount of swell depends upon variety, size, and the judgment of the packer, so that from 5 to 10 per cent of the entire cubical contents of the box must be added to give the actual cubical contents of the space occupied by the apples packed in tiers in the Northwest Standard apple box by the

experienced packers employed by the growers. It requires experienced men to do the packing, and if the Northwest Standard apple box does not contain an honest bushel—four pecks—when properly packed by an experienced and honest packer, the Washington State Horticultural Society will take pleasure in presenting to the Committee on Agriculture of the Senate and House a carload of Wenatchee Winesap apples—none better on earth—and withdraw all opposition to having the size of the box fixed by Congress; but in any and all events, we shall strenuously object to the jobbers fixing the job to sip the honey.

Another and very serious objection to any change in the Northwest Standard apple box, in fact the gist of the whole matter, is that the present standard box is adapted and suited to the varieties of apples grown in the Northwest; that is, it has been demonstrated that the orchard run of apples will tier pack to better advantage in the Northwest Standard box and in what is known as the California Special box, 10 by 11 by 20 inches, than a box of any other dimensions, having its cubical contents within hailing distance of the Winchester bushel.

You will note that I have mentioned another box—the California Special—which contains 2,200 cubic inches, without distention of its parts, or about 49 cubic inches more than the capacity of the Winchester barrel. You ask, why use this box if the Northwest Standard box meets all the requirements? I shall be frank with you and say that the need is wholly that of convenience in packing. As I am not a packer, I shall leave the explanation of this matter to Mr. Whistler, of Medford, Oreg., who is one of the leading apple growers of the Northwest.

The Northwest apple buyers and commission men do not like the California Special box and prefer but one standard—the Northwest Standard box. If the Government in its wisdom shall decide that a standard apple box is necessary, I shall not hold out for two standards, although both boxes now in use have several points of convenience from the apple grower's standpoint. You will understand that the Northwest Standard box adapts itself readily to the convenient packing of all commercial sizes.

Now, another point to which I desire your special attention, viz, actual experience in the packing of apples has demonstrated that the box must be 1 inch more in width than in depth; therefore if the tier pack (which later I am going to show you is the best of all packs) is to be encouraged and maintained, this ratio as to depth and width must be observed in fixing the standard of any capacity whatsoever. A square-end box is absolutely impracticable.

Now, it is evident that Mr. Lafean is not an apple grower. Mr. Porter, ditto, who went so far as to specify in his bill the dimensions of an United States Standard apple box, thus announcing to the world that Uncle Sam had engaged in the apple business, or would soon engage therein—and for whose benefit, may I ask?

Was it for the benefit of the grower? Most certainly not. No complaint has been heard from him. He has never even thought of asking the Government for assistance. This being true, it must have been for the benefit of the consumer, as nobody would have the temerity to approach a think that the buyer and retailer would receive any benefit by putting an extra peck into a box of apples

for which they would not be required to pay. Perish the thought! Forsooth! Odds bodkins! Let every trust that was ever trusted back up and toot, and those which have been busted put their trust in the example that is here set forth. There is yet hope.

The Lafean measure does not specify dimensions because the buyers are not quite certain on that point, although they claim to know more about the apple-box business than the men who originated it. Therefore, we have minimum capacity only mentioned, 2,342 cubic inches, and then the penalty for noncompliance which appeared in the Porter bill and which the buyers concluded might be objectionable to the growers, is sugar-coated by the Lafean bill; it makes the grower who violates any of the provisions of the measure amenable to the law as laid down by the pure-food act. Funny, isn't it, that the most wholesome of all fruits, the apple, which is so common and cheap that adulteration is impossible, must be protected in the package in which it shall reach the consumer?

Now let us take the argument which the buyers have adduced in favor of the Lafean bill—that is, the sweeping reasons held out by Mr. Wagner, president of the International Apple Shippers' Association.

In a letter addressed to W. T. Clark, of Wenatchee, Wash., president of the Washington State Horticultural Association, and dated January 3, 1910, Mr. Wagner undertakes to explain:

You are correct as to our attitude regarding the Lafean bill, but are totally incorrect as regards the purposes of the bill, and we also believe are misled as to its effect upon your industry.

Mr. Clark, the father of irrigation in Washington, and the best-posted man in the apple industry of the State, being misled by the Lafean bill! Not much! Only business affairs requiring his personal attention have prevented his presence here to-day.

Continuing, Mr. Wagner says:

As conditions now exist, there are no two sections of the country and almost no two sections of any State that use the same box in packing apples. In a limited way, this condition applies also to the barreled sections, where many use the short barrel.

Mr. Wagner knows, if he knows anything, that the States using boxes in which to pack apples are Washington, Montana, Idaho, Oregon, and California, which use but two sizes—the Northwest standard and the California special—and are the only States which tier pack their apples, while Colorado and Utah, which use the Colorado box, jumble pack their apples. This, in toto, is the awful burden which rests upon the buyers to determine what kind of a box the growers are going to give them, the Northwest standard and California special—the first 10½ by 11½ by 18, capacity 2,173.5 cubic inches; second, 10 by 11 by 20, capacity 2,200 cubic inches; and the Colorado box.

Now, it is said that the Colorado box will contain more apples than either the Northwest Standard or the California Special. Possibly so. I do not know. But I do know that it costs more than three times as much to pack a tier pack than a jumble pack and that in the foreign market—which market, by the way, the apple growers of this country must ultimately look to to dispose of surplus stock—the tier pack is given preference and will sell for more money per box and is preferred to the jumble pack by the buyers. In fact, so attractive is the scien-

tific pack of the Northwest that buyers for the foreign markets do not consign to dealers, but prefer to sell at auction on the open market.

Mr. Wagner continues:

The apple industry is a constantly growing one and one with tremendous possibilities, but to offer any security to those engaged in it, whether it be the grower, the dealer, or the consumer, there must be something in the way of regularity or something in the way of regulation that will enable one to know just what they are doing. As conditions stand to-day it is impossible for any buyer to buy a carload of apples and know what he is going to receive in the way of a size box.

Ah, here is where we get at the real motive back of this whole agitation. Mr. Wagner has (inadvertently, perhaps) let the cat out of the bag when he says that "the dealer must have security," and to get it "there must be something in the way of regulation that will enable one to know just what they are doing." Exactly. The one (the dealer) must know just what they (the growers) are doing, and, it might be added, what they are going to do.

Of course, in voicing the need of regulation Mr. Wagner refers to the growers and consumers as fellow-sufferers; but when you consider that neither the grower nor the consumer has as yet made any complaint you will have no difficulty in discovering "who has the button." This is an age of attempted "regulation," and I take it that the apple jobbers want to be in the swim and regulate the growers, whom they have found somewhat obstreperous when it comes to fixing the price for the Northwest product.

Mr. Wagner continues:

There is no one, possibly, who is so well able to judge of trade requirements and of the influence upon all interests involved because of these different size boxes as is the actual dealer in the fruit. Here in the East, and practically all of the States east of the Rocky Mountains, and where a much larger percentage of your fruit is consumed, the sale of apples is based by the retailer entirely upon the bushel basis, and any package that will not measure out fair fractions of a bushel is shunned.

Now, just what does our friend Wagner mean when he says, "Any package that will not measure out fair fractions of a bushel is shunned?" He must refer to another size box—a somewhat smaller box which the buyers use when they repack for the benefit of the consumers. We know; they know—in fact they (the buyers) admitted in the hearings on the Porter bill—that the Northwest Standard and California Special hold a bushel, the only standard or legalized bushel (dry measure) recognized in this country—the Winchester bushel—2,150.42 cubic inches, or 23 cubic inches less than the Northwest standard and 49 cubic inches less than the California special.

Now, at this point I desire to say that it is impossible to properly pack—that is, pack to insure shipping without bruising—either the Northwest Standard or the California Special, without distention of their parts. In fact, the swell which must be given the tier pack will add 5 per cent more to the cubical contents of the space actually occupied by the apples packed in either the Northwest Standard or California Special box. Therefore, instead of 23 and 49 cubic inches, respectively, more than the Standard Winchester bushel, you have 123 to 149 cubic inches more than the Winchester bushel. With these facts in mind, we begin to comprehend what Mr. Wagner meant by "measuring out fair fractions of a bushel," to wit:

The Lafean bill specified 2,342 cubic inches for the capacity of the United States standard box which, as a tier pack, will, when measured

with the swell or distention of its parts (which don't forget must be done and, because of the larger box dimensions required, the swell or distention of its parts must necessarily be larger), contains 394 cubic inches more than a Winchester bushel. There are 537.6 cubic inches in a peck. Need I say more? Is the cat black or white? Here's honey for the buyers—they propose to get 5 instead of 4 pecks, as now provided by law.

Mr. Wagner continues and says:

The apple industry of the Northwest in its inception did not suffer because of this, simply for the reason that this product was not sufficiently heavy, but that the fancy fruiterer and stand man who could sell by the piece could take care of the output. That time, though, had gone by, and with each succeeding year the output of box apples should increase materially.

Northwest apples are sold by the box and not by the bushel, always have been and always will be sold by the box; therefore, do you not see that it is the intent and purpose of the jobbers to get 5 pecks of apples for the price they are now paying for 4? How will this benefit them, you say, as they are not the consumers?

Do you suppose for an instant that the magnanimity of the jobbers will constrain them to sell 5 pecks of apples for the price of 4? Their most intimate friends would not accuse them of such an egregious business blunder. Then, where will the consumer come in? Just as he has always come out—at the little end of the horn. He will be compelled to pay more for his box of apples; forced to buy 5 instead of 4 pecks, more than he can afford or more than he can use before they begin to decay, or be forced to buy by the single peck, and we all know how prices in broken packages compare with prices for unbroken packages.

If this is not logical, if this is not just, what will happen if the Lafean bill becomes a law? I shall be willing to return to Washington and spend the balance of my days laboring with the Rockefeller Foundation Commission to have it appropriate annually to the consumer what they are now losing by buying a bushel box of apples instead of 5 pecks. Ye apple! What great philanthropic deeds are attempted in thy name.

What insight, what foresight, and especially what hindsight are manifested here! There will come a time, etc., and out of the larges of our pocketbooks, "We, the fruit jobbers, propose to save you apple growers from financial ruin by pointing out the way you should travel. The output of box apples should increase materially," says Wagner. Now, Mr. Wagner was afraid to tell what he knows about the future outlook of the Northwest apple business for fear he would frighten to death the geese who lay the golden eggs, or else he is in need of a little trip to Washington for a study of horticultural conditions.

Commercial orchards are being, and have been for the past four years, planted at the rate of 4,000,000 trees per annum. These trees come into bearing at four years, and when 5 years old will produce from 3 to 5 boxes per tree. Do you suppose the East will be able to consume all of the fancy apples which will be grown in the State of Washington? Certainly not. That is the reason we are looking to Europe and other foreign markets.

You are going to produce more apples here in the East in the near future, because you are going to come West and learn how we do it—

are going to adopt our methods and grow as fine apples as can be grown in the great Pacific Northwest.

Overproduction, you say, is already staring us in the face. Well, that is good for the consumer, because the trusts and tariff tinkers tell us that overproduction reduces the price.

Mr. Wagner says:

The bill in its accomplishment, even were its terms mandatory, would simply tend to place you upon a fair basis of competition with the eastern fruit, and where in offering the same quantity of fruit, you would have the marked advantage because of your uniformly good quality. The terms of the bill, though, are not mandatory, but permit of your using any box you desire, if you will but stamp upon that box in large type either the number of cubic inches it contains, or the words "short box." This leaves it entirely optional with you as to what package you should use, and should you have any difficulty in fitting the apples to the box, or for any reason prefer the old size, it could be done very readily.

Now, wouldn't this jar you? You are asked to create a law which will be inoperative, or so Mr. Wagner says. He advises us that although there will be a United States standard box, there will be nothing mandatory. We can keep on using our present box, the box which he himself practically admits is suited to our business. All we have to do is to mark on the outside of the box, conspicuously, the number of cubic inches it contains, or the little innocent words "short box." You can imagine what the fruit buyer will do when he has the opportunity of fixing the price for a "short box." What he will do will be more than a "plenty." Yet Mr. Wagner is possessed of the hallucination that he can feed such guff to the fruit growers, the farmers of the Northwest—and that they would like it, because they wouldn't know any better. Why, gentlemen, the fruit-growing business, especially the commercial apple industry, embraces men of the very highest type—merchants, lawyers, doctors, ministers, retired capitalists; men, in fact, in every walk of life. It requires thinking men to make a success in the apple-orchard business, men with a technical or scientific knowledge of no mean order. Mr. Wagner deserves leniency, and, on behalf of the fruit growers of Washington, I pardon this apparent slight put upon us.

Mr. Wagner says: "Should you have any difficulty in fitting the apples to the box"—thus implying that difficulties would be met with—"or for any reason prefer the old box, it could be done very readily." Which means we have Mr. Wagner's permission to do so.

Now, as to competition with eastern fruit: He wants us to get in "upon a fair basis," which, by his interpretation, means 5 pecks for 4, and then points out that our apples would have a "marked advantage" over eastern apples because of the "uniformly good quality" of our apples. Now, with the superior color and superior uniform quality of our northwest apples and the tremendous increase in production now staring eastern growers in the face, you can readily see the finish of the eastern-grown apples. They will be feeding the cider press, pigpen, or wasting their sweetness upon the deserted orchard air.

Now, we of the Northwest don't want to come into competition with eastern growers, nor do we now, nor shall we so long as we pack our apples in tiers and in the Northwest Standard apple box. We are going after the foreign market, and we invite our eastern brother to adopt our methods and profit by our experience.

Mr. Wagner says:

There is a mistaken idea as to the bill calling for a box of specific dimensions; that is, as to length, breadth, etc. This is wrong. It simply stipulates cubic capacity for the standard box. It can be made in any shape one desires, and we have been told by some of the best packers in the Northwest that the box of the dimensions called for in the Lafean bill would pack all O. K.

Now, here is where we get down to brass tacks, as it were, because it requires nails to make an apple box. Mr. Wagner informs us that we can use any dimensions or make it any shape desired. Just so we have 2,342 cubic inches in the box, it makes no difference how much more—the larger the better. Now, while Mr. Wagner so generously permits us to use any shape desired, any kind of an old box—for which we are obliged to him—we fail to see how he is going to maintain that uniformity which he says is so desirable from the jobber's standpoint and so essential to the peace and dignity of the United States. I should like to recommend to the buyers the hexagon-shaped box; and it is passing strange that they have not hit upon this shape so fitting to their calling. It is a scientific fact that more apples can be packed in a hexagon-shaped box than in any other kind of box of the same capacity.

An inventive genius of Spokane, hearing the apple box discussed, and getting the impression from the arguments for the Lafean box that a larger box was needed—that is, a box which would hold the maximum amount of apples within a minimum space—evolved the hexagon box, and urged me to bring his plans and specifications along and offer them for sale to the Government.

When Mr. Wagner says that the best packers of the Northwest have placed the stamp of their approval upon the Lafean box, and that they aver that a box of the dimensions called for in the Lafean bill will pack O. K., I should first want to know the names of his Northwest packing experts, and, second, in what article, section, or paragraph of the Lafean bill the dimensions of the box are given, and, third, that if the Northwest experts could not know of those dimensions, how did they arrive at their conclusions that the box would pack O. K.?

Mr. Wagner then says:

You have been much misled as to the difference in size. As I understand it, the box you now use contains some 2,170 cubic inches. The proposed standard box would contain 2,342 cubic inches, an increase in size, you will notice, of only about 7 per cent, not 25 per cent, as you figure it. This box would, when properly packed, measure out 4 pecks. We believe you will agree that if you would cut your box down 25 per cent, or any other material fraction, that you could sell it for the same price you now obtain. Of course, you could not tell just how much less you would realize, but the same rule applies when you increase the box. It will naturally sell for a larger proportionate value; and advantages gained in every way are very, very material.

Mr. Wagner might have said 8 per cent, and thereby shown a more accurate mathematical knowledge, and that a box 11 by 12 by 18 inches, when properly tier-packed, will add about the same per cent for the distention of its parts.

Let us go into the dimensions. Take up the mensuration business for a brief while, a point so methodically overlooked by the Lafean bill. If you are to be permitted to sell apples with governmental sanction, your box must contain not a fraction less than 2,342 cubic inches without distention of its parts. Now, I do like the euphony

and rhythm of that high-sounding phrase, "without distention of its parts." It is also the little joker by which the buyers expect to get that extra peck of apples, because they know how the Northwest fruit growers pack apples.

The advanced class in arithmetic will now take the floor and do stunts on the blackboard. The problem is: Having the total capacity in cubic inches given, how do you find the length, breadth, and thickness, each of which must be different? Do you gentlemen recall any rule in the old arithmetic of your salad days which will tell you how to go about the solution of the problem? Truly hath the buyers evolved a great mathematical puzzle. They were probably thinking in the fourth dimension, because of being obsessed with the idea that 4 pecks do not make a bushel.

Now, of course, the only thing which can be done with the problem, mathematically, is to extract the cube root. We get a cubical box; that is, a box having the same length, breadth, and thickness—thirteen and a fraction inches. It is neither thirteen and a quarter nor thirteen and a half inches, but a cubical box whose side is thirteen and three-eighths inches would have to be adopted, and you would get a box with 2,392.65 cubic inches in capacity. Fortunately, we know the dimensions of the Northwest standard box, and by the cut-and-dry method, using 18 inches as the length, the nearest capacity to the minimum is 2,376 cubic inches, or a box 11 by 12 by 18 inches. Using 20 inches as the length, we get a box 10 by 12 by 20 inches, out of proportion, or a total capacity of 2,400 cubic inches.

To maintain the northwest standard width and depth, a box $10\frac{1}{2}$ by $11\frac{1}{2}$ by 19.4 gives a capacity of 2,342.55 cubic inches, and we take it those are the dimensions which Mr. Lafean had in mind.

Then, if we desire to maintain our $10\frac{1}{2}$ inches deep by 18 inches long, we must make our box 14 inches wide, which gives us a box of 2,646 cubic inches in capacity, all without distinction of its parts.

Take your choice, Brother Fruitgrower; you will be allowed to use any or all of them in a single carload pack and have the sanction of the Government and the blessing of the "jobbers," because you will have complied with the law to be hatched by the Lafean bill—uniformity of the box not considered; they will accept a large-sized dry-goods box, if you prefer it. Could there be anything more absurdly anomalous than the Lafean bill when its objects are defined?

Again, Mr. Wagner assures us that if we should be so grasping as to cut down the size of our northwest standard box "25 per cent or any other material fraction," we could sell it for the same price we now obtain; thus admitting the superiority of the northwest apple and putting himself on record that the northwest apple sells by the box and not by the bushel; that the size of the box cuts no figure.

In the next sentence he begins to hedge and goes on to state, as though he had not already made the admission that the size of the box cuts no figure, "Of course, you could not tell how much less you would realize," says he, implying that the size of the box does apply and the less the capacity, the less the price; and then winds up his involved and abstruse explanation by saying, "But the same rule applies when you increase the size of the box."

Now, we are to believe that we shall get more per box for our apples when packed in the Lafean box because of its greater capacity.

This being true, where does the consumer come in, for whose benefit the larger box is ostensibly designed? The consumer pays in accordance with the size of the box? Maybe not. A vision haunts me that perhaps the jobbers intend to pay the fruit growers more for the larger box and not increase the price to the consumer, and will guarantee to reimburse the retailer for any loss he might see sneaking away from him by selling five pecks of apples for the price of four.

Mr. Wagner is not satisfied with giving the aforesaid assurances, but proceeds to clinch the matter, saying in the next sentence, "It will naturally sell for a larger proportionate value, and advantages gained in every way are very, very material." By "it," we take Mr. Wagner to mean the Lafean box. Where, oh where, is the premeditated philanthropy for the benefit of the consumer? Methinks I can hear the jobbers say, "We love the retailers; but oh, you consumers!"

Mr. Wagner proceeds to say:

It will be my pleasure in the very near future to forward you a copy of the Lafean bill, and I am thoroughly convinced that when you read it carefully you will thoroughly agree with every one of these provisions. The great difficulty, so far, has been that the Northwest, especially, had been misled by certain parties as to the provisions of the bill. As you have been misled in reference to this 25 per cent, I find further that they seem to have an idea that the bill is mandatory, and that the box must be made in a certain mold.

Realizing that, with your broad commercial experience——

MR. WAGNER. Why not finish the letter?

MR. MONROE. I will, Mr. Wagner.

Realizing that, with your broad commercial experience, you will look at this matter in an entirely different light from the small grower, who is conversant only with matters in his own county and possibly not beyond the limits of his own fence lines, I am relying in a large measure upon the influence of yourself and men just like you for support for this bill when you do become conversant with this bill.

We hope Mr. Wagner is satisfied with his reliance.

Now, I am going to say just a few words as to Mr. Wagner's innuendo that "the Northwest, especially, has been misled by certain parties as to the provisions of the bill." Mr. Wagner refers to J. L. Dumas, of Dayton, Wash., formerly president of the Washington State Horticultural Association, who appeared in Washington against the Porter bill and was the means, by his forceful arguments, of having that monstrosity pigeonholed for all time. I have with me the unanimous indorsement of the Washington State Horticultural Association as to Mr. Dumas's part in this controversy. If there has been any effort to mislead it has come from the "buyers" who have been careful not to give out more than the law would allow in the way of information about this measure.

Now, Mr. Wagner has promised much and failed utterly in the performance. He has asserted that he has given wide publicity to called meetings for the discussion of this measure and has called our growers liars when they would have the temerity to say they had never been advised. Mr. Wagner, in a letter to President Clark, under date of January 25, says:

In compliance with my promise of some couple of weeks ago (January 3), I hand you herewith copy of H. R. 16919, which is the fully revised form of what is known as the "Lafean bill."

This notation appears on the bottom of the page, penned by President Clark, "New bill not inclosed."

Mr. Dumas, at the close of the hearing with the apple shippers on the Porter bill, offered to pay \$20 for a transcript of the proceedings. He was promised a copy gratis. He failed to get it. I say the secretary has it, and that \$20 offer stands good.

Mr. Wagner says:

The apple business of the Northwest is growing away every day, and some steps must be taken to place it on such a footing as will lead to the broadest and greatest development, and if you are going to market in the country where a bushel is the standard, we believe you will agree that a bushel should be used, or a box that will approximate a bushel, and that you should meet your competitor upon an even ground, and especially so when you have everything in the way of advantage as to color, grading, etc.

The Lafean bill is not the outcome of hasty action, but is the result of years of study of conditions. It is not a bill in favor of the commission merchant or the fruit dealer, only in so far as it favors and assists in the sale of the product and anything that will assist him naturally reflects back on the producer and is bound to do so. The two large gainers under the Lafean bill are the two who would be most largely interested; that is, the producer and consumer. The buyer would be largely the gainer because of the greater certainty as to his purchases and the lack of absolute necessity of his being on the ground to inspect every package he purchases, thus broadening his scope.

Doesn't that sound sonorous and impressive? Why, when I reached those two paragraphs I unconsciously salaamed three times in the direction of Chicago, where all material blessings flow or are about to flow out to the poor, benighted fruit grower away up in the Pacific Northwest, beyond the Rocky Mountains and the confines of the influence of that mighty city.

An analysis of this eruption is wholly unnecessary. Mr. Wagner says everybody is going to be benefited and that the "two large gainers are the two most largely interested, the producer and consumer." Now, how can that be, unless we reduce the price to the consumer, which predicates that the price to the producer has been reduced, and which calamity Mr. Wagner has already assured us will not eventuate?

"The buyer," he admits, "would be largely the gainer, because of the greater certainty of his purchases." Mr. Wagner here refers to the long-sought-for uniformity of box, but how is the Lafean bill to help him if the growers are permitted to use any old shape or size of box they please? It is not necessary to state that Mr. Wagner has the utmost confidence in the fruit grower; that once he has fixed the minimum capacity of the apple box, the grower will not go above the minimum any more than he has to. This axiom of human nature also applies to the fruit jobber, who will take no more than he can get.

In a letter to Mr. Shepard, of Hood River, Oreg., under date of February 10, Mr. Wagner says:

There is no getting away from the fact that your fruit in your more-favored sections is in a class by itself and that in other sections which are not especially favored the size of the box does not mean what it may mean to you.

I beg your pardon, Mr. Chairman. I will complete what Mr. Wagner says here:

It has been demonstrated that your fruit will even pack in the Colorado box to advantage, and we really feel that this trouble regarding the change in boxes that is anticipated by your people is like most of the others of our greatest troubles, the kind that really never come.

Thus, again, Mr. Wagner repeats to Mr. Shepard that our fruit is in a class by itself, and that in other sections which are not specially favored the size of the box does not mean what it means to the Northwest. Yet, in the next breath, he goes on to invite us to pack our apples in the Colorado box; that the change in the size of the apple box need give us no fear; that it is a kind of trouble that really never comes. We agree with Mr. Wagner in that particular, and that is the reason we are here—to see, in all fairness, that this trouble never comes.

Mr. Wagner says:

It has been my experience and the experience of others that where we have come personally in contact with your people, we have been able to make them see things in a different light, and that the broader-gauged among those engaged in the trade, whether grower or operator, have readily seen the merit of our opposition when fairly and squarely presented to them.

Here we have the assurance that if we are but broad minded enough we shall behold the merit of the opposition of the buyers. Yet, in another sentence, we are told there is no opposition; that everything being done, which has been done, or is yet to be done, is for our good—everlasting and a day or two more. Funny, isn't it? Yes; it is to laugh, because he says:

Our position is largely that of the parent, who in chastising the child advises the child, with all true honesty, that he (the parent) is hurt worse than the child.

And then, further, he says:

It is the honest belief of those who are on the opposite side of the fence with you that if this measure becomes a law, it will redound to the ultimate, even the immediate, benefit of your people.

Now, what does Mr. Wagner mean by that, knowing that Mr. Shepard is absolutely opposed to the Lafean bill—opposite side of the fence with Mr. Shepard? We take it that Mr. Wagner is now with us and is going to fight the Lafean bill. It may be so. Yet I have misgivings, for, continuing, he says:

That if this measure becomes a law, it will redound to the ultimate, even the immediate, benefit of your people.

He does not appear to be with us at this point. In fact, this jack-in-the-box argument (now you see it and now you don't), put up by the leading advocate of the Lafean bill, smacks to me of the three-card monte and the revered old shell game indigenous to the wild and woolly rural districts of the great State of Illinois, or of Pennsylvania.

A little further down he says:

That, as I have before pointed out, it is a commercial necessity and being such, he who fights it is but butting his head against a stone wall, and even though he wins, he loses.

There we go again! More shell game—"Though he wins, he loses." Of course the grower loses, if you gentlemen permit Mr. Wagner et al. to stack the cards. We'll take our chances with the honorable apple buyers if you'll just let us alone. Big game is being stalked also, and with your permission, gentlemen, we'll play the game with the apple buyers and tote fair by giving an honest bushel to the consumer, and, what's more, an honest pack. That is, the tier of apples on top will represent what you will find in every tier in that box.

One word more. Reference was made to the fact that because of the enormous increase in the production of apples in the North-

west within the next three or four years—certainly within the next decade—the Eastern States would not consume a tenth of our annual product; that, therefore, we of the Northwest must of necessity look to the foreign market to consume our surplus stock. Am I to understand, gentlemen, that you are so concerned for Johnny Bull et al. that you will compel your own countrymen to give them 5 pecks for a bushel, for that is just what you will do if the Lafean bill is passed by Congress, because the apples of the future grown in the Northwest will be marketed in foreign lands.

I believe this Congress to be a constructive and not a destructive body, and that this committee knows something about horticulture and the most important branch of horticulture—the growing of winter apples. Therefore I am confident that you will listen to the plea of the farmer, of the fruit grower, the toiler, who asks naught at your hands except to be allowed to enjoy the blessings which the Government has vouchsafed unto him—equality, justice, protection, and the pursuit of happiness.

The members of the National Apple Shippers' Association are not all in accord with its president, for Mr. Wagner well knows that he can no more prevent the buying of our apples packed in the Northwest Standard box than he can stop the revolution of the earth around the sun. The apple buyers need no protection at the hands of the Government; while "they toil not," they do a great deal of spinning—the spinning of webs to catch unwary flies. Don't think for an instant that they will give up their prerogative to fix the price of the apple, whether it is packed in boxes or in barrels. We had not heard of the basket package; but perhaps there is a basket trust desirous of expanding the market for its product.

All of us can readily see that a uniform box for tier-packed apples is desirable, both from the shipper's and grower's standpoint, and that if its dimensions were fixed upon with an act by Congress making it the standard, some slight immediate good might result. But we claim that this is a big question; that it is a question for those directly interested in the business to work out.

We believe that eventually the northwest standard box—10½ by 11½ by 18 inches—because of its merits as the only box which adapts itself to tier-packed apples, will be universally adopted and will be the standard box established by custom and sanctioned by the Government, because it is an honest Winchester bushel.

I am representing the men who produce the goods. The producer is at all times the source of the nation's wealth; hence the fruit of his labor—the honey, if you will—attracts the nonproducing but busy "bees"—that great class of philanthropists known to the commercial world as middlemen. Granted that they are a necessary evil to get the goods produced to the people who consume them, we deny their right to dictate to the producer how he shall meet the consumer who is being made, for ulterior purposes, the beneficiary—save the mark—of the middlemen's present philanthropic intent.

We believe, gentlemen of the committee, that it is about time that the horny-handed son of toil should be allowed to come to bat. He has been chasing the balls batted to him by the other fellow all over Uncle Sam's lot for so many years that really he has never paused to think that he has an inning coming to him; but if he did sometimes think of it, he considered it so far in the sweet by-and-by that he

immediately became discouraged and went on chasing the balls of the "little busy bee," which in too many cases finally landed him in sight of, and too often within, the portals of the house of the three balls; and you know the rest. The good old honest but easily led farmer may strike out when he comes to the bat, but we shall prefer to have you, gentlemen, as the umpire rather than the "little busy bee" who produces no honey.

Now, Mr. Chairman, I have a letter from Mr. W. R. Keller, of Neosho, Mo. He is a shipper, and he recites that he has done a lot of hard work, in the way of corresponding, to defeat this measure. He inclosed a clipping which appeared in one of the trades journals, I believe, which is evidence that all the Northwest growers are a unit in opposition to the Lafean bill.

I desire to say that I have brought here, and wish to have filed as an exhibit, the stenographic report of the Washington State Horticultural Association, touching upon the Lafean bill, by the members themselves. I won't take time to read it.

I also have a stenographic report here of the committee on the apple crop and grading rules, held at the national apple show at Spokane last November, with clippings from newspapers in widely separated places. The Lewiston (Idaho) Teller, of January 17, 1910, said:

A Philadelphia newspaper has advised the farmers of Pennsylvania and the East to visit the orchards of the Northwest to learn a lesson in fruit culture. It contends that they can raise just as high a quality of apples on the Atlantic coast, if proper care is taken to prevent diseases and pests. Attention is also called to the attractive manner in which Washington and Oregon apples are sorted and packed, whereas the eastern fruit is dumped into a barrel. It concludes that this is only one of the many lessons that the eastern farmer can learn from his western brother.

The CHAIRMAN. Let me suggest that it is not necessary to read any further quotations. I assume that they are all to the same effect.

Mr. MONROE. They are all to the same effect.

The CHAIRMAN. I think we shall have to postpone any further hearing until to-morrow, as the time for adjournment has arrived. The committee will stand adjourned until to-morrow morning at 10.30 o'clock.

Before adjourning, however, I wish to state that I am advised that this room has been engaged by another committee for a large hearing to-morrow, and I shall have to ask you gentlemen, therefore, to attend at the regular committee room of the Committee on Agriculture. It may not be quite so comfortable, but I think we can make room for all of you.

(Thereupon, at 4.50 o'clock, p. m., the committee adjourned until to-morrow, Friday, March 11, 1910, at 10.30 o'clock a. m.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
March 11, 1910.

The committee met at 10.30 o'clock a. m., Hon. Charles F. Scott (chairman) presiding.

The CHAIRMAN. The committee has met this morning to resume consideration of the Lafean bill and to continue the hearings on that measure. I am advised that Mr. W. K. Newell, president of the Oregon State Board of Horticulture, is present and would like to make a statement, and the committee would be glad to hear him.

Mr. NEWELL. Mr. Chairman, I would like first to present Mr. C. E. Whistler, who is one of the largest individual growers of apples in the State of Oregon, and is also president of an organization which is now organizing to market almost the entire crop of the southern part of Oregon and Rogue River Valley, and which will represent, if that organization is completed, and no doubt it will be, something like 500 carloads of fruit this year, if not 1,000.

TESTIMONY OF MR. C. E. WHISTLER.

(The witness was sworn by the chairman.)

The CHAIRMAN. In order that we may expedite this hearing, I would suggest that Mr. Whistler be allowed to complete his statement before any questions are asked him.

Mr. WHISTLER. Mr. Chairman and members of the Committee on Agriculture, in coming before you this morning I do not know that it is necessary to go through the introductions which have been gone through by some of those who have preceded me. I think that what was said on the part of Mr. Newell by way of introduction is sufficient. However, at the present time I come before you as the delegate or as a representative of the Rogue River Horticultural Society. I have followed the course of the fight upon the present Lafean bill in many of its prominent battles this last winter, beginning with Spokane, at the National Apple Show, to which I was sent as a delegate from our society, and from there I was sent as a delegate on to Denver, to attend the Western Fruit Jobbers' Convention, wherein we had been notified that this bill would be discussed.

While I was there I also received a telegram to proceed on down to Washington to see what was being done with this bill, and while on my way here I learned that there was another convention, of commission men, to be held at Norfolk, Va., which was the annual convention of the National League of Commission Merchants, an organization, as I understand it, comprising a membership of about 450 or 460 members. I attended that convention also. So, gentlemen, what I have to say upon this point at the present time will be after these observations which I have made during the entire campaign which has been made upon this question, and the discussions which may have taken place at these different meetings.

I wish, first, in dealing with this question, to pay my respects to the arguments and claims which have preceded us on the affirmative side of this question, before paying my respects directly to the bill, and I want to say in all respect, gentlemen, to these men who have come here in support of this measure—and many of them are known personally to me as a result and consequence of the business relations in which I have stood with those men, and I am pleased to meet them here—I frankly confess that these gentlemen represent to my mind the best type of the profession which they represent, and I believe I am speaking the truth. I only wish, gentlemen, that all of their associates were up to their grade and standard.

With regard to the points which have been raised and the arguments which have been introduced by the various gentlemen who have preceded me upon this measure, their arguments have covered very much the same ground, so that it will not be necessary for me to follow directly the argument of each speaker who has preceded me,

but I will note the points which have been made. Then, having done so, with that I shall proceed with my respects to the bill.

First, I wish to say that it appears at least that a general impression is wished to be made on the minds of your committee that there is but a very small and weak and insignificant minority which is standing to-day in opposition to the Lafean bill, hardly appearing to recognize the full extent of the opposition which comes up to-day, rather saying that it rests only with two States in the Union, Oregon and Washington, along this line, and that the chief objections which come to this bill come from those two States. However, even were that true, I wish to make another point at this juncture, and that is this, that though it were from but one State, if the principle is right, that is enough. And I wish to say that California—which we shall enlist before we close this argument—by conventions which were held with us, and Montana, Idaho, Oregon, and Washington, are united in opposition to this bill; and those States, gentlemen, are just as loyal to the old flag, and will spring forth just as quick, as any territory under the old flag; and we claim that this is a question of principle and not of special interests.

I will say, first, that the proposition which is laid down in support of this bill is the question of standardizing by law a product which is to go before the American people, so that the consumer may know what he is obtaining when he is purchasing this fruit. Coming to that point, I wish to say that they are dealing with a question that it seems to me is branching out in an entirely new and untried field, and if it be true that it be wise at this time to take up the question of regulating by law the grading and packing of apples, the same principle must apply to all agricultural products. The question was asked before this committee day before yesterday of Mr. Bahrenburg, of New York, if it were necessary that they regulate the commercial transactions with reference to apples, why it should not be carried out into the other agricultural fields. His answer was that the problem was too large. Gentlemen, I think you will all concede that it will be but a short time, should this thing obtain before this committee or before this Congress, until our Government will be overwhelmed with a volume of necessary bills following this, which will centralize the whole system. It is in the power of the Government to carry out and to successfully put into operation laws which shall regulate your peaches, your pears, your oranges, your lemons, your cranberries, and every product that goes before the American people.

We do not understand that it is necessary that Congress should take cognizance of these relations which exist between the producer and the consumer in order that the consumer may have an honest, square deal. We appreciate those high tributes of respect which were paid to the people of the Northwest by these gentlemen when they were upon the floor, when they said that if all the rest would do like Oregon and Washington and the Northwest did they would need no law. I want to ask you, gentlemen, what was the active principle that prompted us to do what we have done in the Northwest? Was it a statute of the United States which compelled us to do that? Have we not demonstrated that it is not necessary to compel men to be honest by putting statutes upon the books? If

the tributes which they paid to us were true it is the law of commercialism, gentlemen, which brings those points out.

We have reached those heights by virtue of a law which is broader than any statute; it is the law of commercialism, it is the law of conquest, and the law of contest, and survival of the fittest, gentlemen, which is always on top. If we have won that eminence by virtue of this, it is a question of education and not of law. Education has put us up there, and we have come to this as the result of schooling; our agricultural colleges have gone out and taught the principles which are embodied in this pack. We raised this question upon the law of commercialism, the survival of the fittest, which is nature's law of this regulation in these products, whereby the public have a right to turn down; and there is no injurious effect, there is no necessity of bringing this thing under a law in order that the public may be protected in that point.

One point brought up on the first day of these hearings before this committee was with regard to obtaining money from the banks, provided this law went into effect. Gentlemen, let us notice that. You standardize this pack by law, and then the banker loans you money upon the guarantee which you get from law that these goods are going to be what they are represented to be in that pack. Gentlemen, is there a law required; is it necessary that a law be enacted to bring about such a condition? I want to tell you that in the Northwest, where they know the merits of a scientific handling, we can borrow money on our apples right on the trees. Does it require a law to bring us to that? Is that the way to do it, by fixing a standard and forcing them to it? No, sir; the way to do it is by education. Educate your people; educate them by forcing this competition; and that should be the rule and the law which should regulate this.

Now, I want to go back to the point which I first raised, as to the support we are getting on this subject. I will say that at the Norfolk convention—and there are a number of men here who were at that convention and who will bear this out—the chairman of the delegation from Minneapolis, Mr. Longfellow, said: "Mr. Whistler, these men have come down here either pledged or instructed to support this measure, and our delegation came the same way." He said: "Had it not been for the fact that such was the case, you would have won a majority vote before this convention." That was after I had made some demonstrations regarding a box and had met and considered the arguments, and the resolution which was offered at that convention; and I wish to say that when it came to a vote before that convention to adopt a resolution indorsing the Lafean bill, there were 31 negative votes in their own convention in opposition to that bill, and I will read you the votes which stood in opposition to that bill, and among them were a large number of eastern delegations present at that convention. I find that I have mislaid that paper.

However, I wish to say that there were 31 negative votes, and a number of delegations voted solidly at that convention. Buffalo gave me its full delegation, and Minneapolis, and Pittsburg gave me four-fifths of its delegation, and enough others split their delegations to make 31 negative votes, when the fact was that they came there either pledged or else instructed to vote for the bill. The trouble is, gentlemen, that this thing has not been discussed and put before the world; and these conventions along this line are voting without

understanding what they are voting on. Therefore I say it is not a unanimous thing, by any means, and these things are matters of record in these conventions.

Mr. COLE. What was the vote on the other side?

Mr. WHISTLER. The vote on the other side was what it is in the jobbers' convention.

Now, I have a letter here written to Mr. Bourne, United States Senator from Oregon, by a firm of commission men in New York, and I wish to call your attention to the fact that they are not standing solidly for this bill as it would be made to appear before this committee. This letter reads as follows:

NEW YORK, March 7, 1910.

HON. JONATHAN BOURNE, *Washington, D. C.*

HONORABLE SIR: We hope that you will make a fight for the Hood River and Washington box, and that each box shall be numbered so as to show the number of apples contained in it, regardless of the cubic inches.

The grading of the Hood River and Washington apples is far above the standard that these people want graded to, and by passing such a bill it would mean the lowering of the grading of the Hood River and the Washington apples, as the box that they propose to make "The United States standard" is too large for the way that box apples are put up.

It is not the intention of the Hood River or Washington people to put out a short package, but, as you know, they are compelled to use two different sized boxes in Hood River on account of the different size of the apples, although every customer, when he buys, knows whether he is buying 128's, 112's, 104's, 96's, 88's, 80's, 72's, 64's, or 54's.

Now, these two States have the finest fruit in the world, and we do not think that Colorado, with her inferior fruit, should dictate to them, as they grade and size their fruit, while Colorado gives you what we call "A shuffle pack" which gives you five or six different sized apples in the same box, which is packing the fruit practically the same as they do barrel stock. This "Shuffle pack" is very, very unsatisfactory to the people who buy fruit packed that way.

We are speaking from experience, inasmuch as we have handled one hundred thousand boxes of apples this year, and it has been the most unsatisfactory year that we have ever experienced on account of the way that Colorado sizes her fruit; as they do not pretend to size it at all. The size of box that they propose will be very disastrous to both Oregon and Washington, as they have been trying to introduce their box on the eastern markets, so we hope that you will put up a fight and not let the bill go through.

In regard to the barrel apples, would say that it does not make much difference what kind of a package they pass upon; but with the box apples, it will make all the difference in the world, and, knowing that you have the interests of your State at heart, we hope that you will get the other Senators to cooperate with you and see that the bill never gets out.

The committee, and the people who are coming down to represent this bill, are more interested in the barrel than they are the box question.

Yours, respectfully,

W. O. & H. W. DAVIS.

Further, the fact has been referred to here that California was in support of this bill. Gentlemen, I know better. It is unfortunate that California is not more organized, in her apple districts, into an association, but she is not. Reference has been made here to the California association, and it was said that the Watsonville association was in favor of this bill. I want to say that there is no association at Watsonville. There is no apple growers' association at Watsonville, and I have a letter here from a commission merchant and a fruit dealer who puts himself on record regarding the feelings and the sentiment of the people of that district.

(Mr. Whistler here read the letter referred to.)

The matter was referred to also before the committee yesterday by Congressman Murphy, of Missouri. Now, I wish to say that in the

Northwest we have with us solidly Idaho, Montana, Washington, Colorado, and Oregon.

The CHAIRMAN. At this point, if you will pardon the interruption, perhaps I ought to lay before the committee a telegram which I received this morning from San Francisco, which is addressed to me as chairman of the committee, and reads as follows:

SAN FRANCISCO, CAL., *March 10, 1910.*

HON. CHARLES F. SCOTT, 1607 Irving Street:

San Francisco, Seattle, Tacoma, Spokane, Portland, Oakland, Los Angeles, and San Diego chambers of commerce, comprising associated chambers of commerce of Pacific coast, strongly protest against enactment of House bills twenty two six two and sixteen nine one nine or the passage of any other bill or compromise measure fixing size of apple box other than boxes now in use by Pacific coast apple growers.

ASSOCIATED CHAMBERS COMMERCE,
C. W. BURKS, *Secretary.*

Mr. COCKS. I would like to say here, inasmuch as the gentleman has submitted letters opposing the bill, that I received a large number of letters from New York houses strongly favoring the bill.

Mr. WHISTLER. Yes, I recognize the fact, because it is this point of view that compels me to recognize, therefore, that these arguments have not been put before the people thoroughly. They are not acquainted with it. Mr. Longfellow said: "Whistler, had you not been at that convention every vote would have been for it." I recognize that fact, but I do not want this committee to understand that this thing is going through without a protest outside of Oregon and Washington. The telegram submitted this morning is sufficient on that question. I shall cease upon that, because it clearly brings out the point that I wanted to bring out.

Mr. POINDEXTER. I intended to state this yesterday, and I am not sure whether I did or not, in regard to the standard adopted by Canada, so far as the box is concerned. There is a great deal of comment and argument made by the organizations backing this bill about the benefits that have grown out of the standard fixed by Canada. Canada has adopted the Western Special box, one of the boxes in common use on the Pacific coast, as its standard. I wanted to make that clear to the committee.

Mr. WHISTLER. Now, gentlemen, I do not know that it is necessary for me at this present time to go further into the question with regard to the point which has been brought out now, until I attempt to establish three things in regard to the character and nature of this bill. I stated that I would attempt before this committee to establish three negative propositions, and these other arguments will come up in their necessary classification under these three heads. First, this bill is unwise legislation; it will be unwise legislation; the second proposition is that it is unjust legislation; and the third proposition is that the provisions of this bill do not meet the purposes for which we have been told here that the bill was originated. Now, the man is present here to-day who is the father of this bill, so he stated in a convention a short time ago, and he has made himself heard regarding the purposes of this bill. Therefore the bill must be considered as authoritatively represented here before this committee.

Mr. HAWLEY. What is the business of this gentleman who fathered the bill?

Mr. WHISTLER. He is a jobber, a fruit jobber. It originated there. He is being fed from that kind of milk.

The CHAIRMAN. Now, will you discuss those three points in the order in which you have named them?

Mr. WHISTLER. Yes.

The CHAIRMAN. I think you have stated them very clearly, and I hope you will get to the point as briefly as you can and show us why the bill is unwise and why it is unjust and why it would not accomplish the purpose which it is proposed to accomplish.

Mr. WHISTLER. Yes, sir; that is the very plan and system by which I propose to put this matter before this committee.

First, take the question of unwise legislation. You will note that it has been brought under the provisions of the pure-food law, under section 4, paragraph 1. It will be recognized at once that this bill has been put under the provisions of the pure-food law to be put into execution. Section 4 reads as follows:

SEC. 4. That apples in closed packages shall be deemed to be misbranded within the meaning of the act approved June thirtieth, nineteen hundred and six, entitled "An act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes."

Now, gentlemen, I understand that that clause carries a penalty with it. You have brought this under a criminal law, the minimum penalty of which I am informed—and I am ready to stand corrected if I am wrong—is a fine of \$500 or imprisonment for one year for each and every offense. There are certain provisions of this bill which throw the operation of it under that law, which I think you gentlemen—and even the father of the bill—will readily recognize would make it an unwise and unfair measure. Now, notice; back to section 3, page 2, line 18. We come to the question of the grading of apples, and it reads:

Apples of one variety, which are well-grown specimens, hand picked, of good color for the variety, normal shape, practically free from insect and fungus injury, bruises, and other defects, except such as are necessarily caused in the operation of packing.

Gentlemen, there is the provision under which these apples are considered to be misbranded unless they comply therewith. Am I not right? Certainly I am; and the penalty is a fine of \$500, minimum, or one year in the penitentiary, for each and every offense. Gentlemen, when we come to put this into operation, it was suggested here yesterday by a member on the affirmative side, and it was a logical result, that in order to put this law into successful operation you must have your government experts to act as judges upon this fruit. It necessarily follows so, if you expect to give us justice at all; and I am willing to rest my case with this committee first, last, and all the time.

Now, gentlemen, here are questions that are not definitely determined. You can not test these qualities by acids and get results, nor can you figure it out by mathematics and get a result. This is a matter on which there are variations of opinion among absolutely honest men, and it is a question wherein the human mind is not capable of coming to a determinate point; so that you would have these questions continually raised with every shipment that may be called up under inspection. The reason I bring this out so strongly as I do is that I have seen the best experts in the land deceived, and I am going to bring you up a direct illustration so that you can see how this would act. Mr. Fletcher, of the Virginia Experi-

mental Station, went from Cornell College out to Washington and became the director of horticulture in the Pullman Agricultural College. We called him up to some of our fairs to act as judge on our fruits, and I have acted in the same capacity when I raised the question of the ability of human minds to approach a definiteness on these points.

We came up with a plain, simple, little apple, the Ben Davis, which everyone of you might know; you feel you do, and I have no doubt you do, if you are not out of your own territory. We took those very apples and we fooled the best experts in the world; and we did not do it alone on them, but on nearly every variety that we grow, until finally Mr. Fletcher, who is accepted as one of the highest authorities on that point, just simply surrendered and said: "Gentlemen, it is impossible for me to go further; your varieties change on account of the climate and conditions of soil." So we can put a man in here to do this work, with the highest integrity in the world, and submit his fruit to some expert down here who has never met those apples, and what condition do you place him in? Are you going to put a criminal penalty on us because we have not, in the judgment of a government expert that you have chosen, complied with the law? Is that possible? Yet that is the provision of the bill. How is that man to determine on these points?

The bill says "Apples of one variety, which are well-grown specimens." How many of these men that the Government would first employ could be considered to be judges upon these points? Very few. How, then, is the shipper going to get justice under the operation of this law? So, from that standpoint, I claim it is an unwise measure, because it is an unjust measure. It makes it a complicated affair, wherein the Government will be obliged to obtain an innumerable corps of expert officials in order to determine whether these apples are up to the grade as provided in this bill. Now, let us come right down to our custom in handling these apples. We are endeavoring to sell, and do sell, in a large measure in the Northwest, apples f. o. b. shipping station, and I am happy to say that we have men right here to-day who have handled a large majority of those apples and know that what I state is true. Do you suppose we are going to start those apples out upon the road under a contract to let them come down here and pass this inspection among these judges who may have originated in this territory, who may not have had experience in judging our apples? No, sir; we want these expert judges right up there to determine upon those apples before they leave our territory.

We have shipped too many apples to these foreign ports, and when they got to the other end had a question come up—and perhaps, I will say, owing to the condition of the market—that they are off grade and off quality. The people at the other end have the big end of the whip there, and we do not care to be subjected to that, and we are now insisting that those apples shall be inspected at our end. Suppose we send out our apples, we are going to insist that men shall be kept right there at every one of those shipping points to inspect the apples before they go out. Why? Because you have got us under a criminal provision of this law, and each and every offense may impose upon us a penalty of \$500 and imprisonment for a year in the penitentiary, and, as our good friend said here

yesterday, they might keep us there for life if in our best judgment we had attempted to comply with this law and yet some government expert who did not understand the business had decided adversely to us. Gentlemen, there are points I wish you would consider. From that standpoint that is illogical.

Mr. COCKS. I wonder if the gentleman realizes that the entire oyster industry is also under this law?

Mr. WHISTLER. That is possibly true.

Mr. COCKS. Well, I only wanted to show that there are others.

Mr. HAWLEY. I would like to ask the witness also if there is as much dispute about the grading of oysters, if there is involved as much question about color on account of growth in different localities?

Mr. WHISTLER. You will have to ask the other man, because I never grew an oyster in my life.

Mr. MONROE. Can oysters be adulterated? Can apples be adulterated?

Mr. COCKS. I just wanted to show that there were others that come under dispute.

Mr. WHISTLER. In regard to the question of being hand picked, that is a peculiar question. If it is injurious to an apple not to be hand picked, then let them pick out those apples which are injured. How is a man to know whether an apple is hand picked or not—I never heard of picking apples by machinery—or how it is picked?

Mr. COCKS. Does not that refer to windfalls, which run the chance of being bruised, and apples which are picked from the tree by hand? Those are the two kinds of apples.

Mr. WHISTLER. Very true; but if a windfall is an injured apple, make your test apply on the nature of the injury; because there could be cases where you do not know whether they are hand picked or not.

Mr. COCKS. Certainly; we understand that.

Mr. WHISTLER. Very well. There is the defect in that. Now comes the question of good color for the variety. Now, what is to set the standard of good color for a variety? Color is our highest asset in the Northwest. When we get out what we call an extra fancy brand of apples, which sets the pace for the world, color is our asset. Now, the bill says "of good color for the variety." I have been organizing associations lately, and we have been organizing one recently in southern Oregon, where we are endeavoring to amalgamate a large district, and these points have come up, and I have thought for three days—not for an hour, as I hope to do here and then be done with it, but I have thought for three days—over these things, in order to harmonize them and get them into shape. As I have said, what is the normal color? If you say normal color for New York or Virginia, that might imply an apple which was 40 or 60 or 75 per cent red. Now, we draw the color line on our extra fancy grade apples, which are not 75 per cent red, but must be 95 per cent red, and unless they are they do not pass through our association.

Who is going to say when these apples are of normal color, of good color, and when they are not? Where are these judges to be taken from, and what is to be the basis of comparison? If it is to be New York, we say, "No; unfair! unfair!" at once. But we are entitled to recognition. Now they say, "Normal shape." Gen-

tle men, what is the shape of a Ben Davis apple, and what is the "normal shape" of a Ben Davis apple? We will take those apples in different territories and they will vary in shape, etc., owing to differences of soil and care and climate. They do that, and we have confused the best of experts upon those points. The bill says, "practically free from insect and fungus injury." That, gentlemen, I will concede, is probably about as near as you can get it. I will concede that that is about as near as you can get it. We only wish to show that your eastern man will be made to suffer on that much worse than we, and we are willing to take our chances with it. That will not injure us much. It is only on those points where injury comes to us that we claim it is an unfair measure.

Mr. COCKS. I would like to ask the gentleman a question. He is arguing that we are predisposed in favor of the bill. If we are inclined to get at and favor some sort of regulation, can you give us any idea what that should be?

Mr. WHISTLER. No, sir; because I do not believe in the principle.

Mr. COCKS. All right.

Mr. WHISTLER. I do not believe in the principle of regulating that thing by law. I say that commercialism is a wonderful mother and she holds a fertile womb, and it takes nothing but a spark of north-western ingenuity to make the old lady breed. So much for the question of unwise legislation. The complications would compel such a number of public officials at these different points, and bring up so many questions of a confusing nature, that it seems to me the bill must of itself become inoperative. It is a hard thing to bring this thing up here, putting a man under a criminal penalty of law, subject to a penitentiary sentence of one year, when his intelligence may have been put forth in the greatest integrity.

Personally, gentlemen, I would not care so much; I am able to comply with this law and bring out what is wanted here; but I do say that the smaller men, who have not had the experience in commercial lines that I have had, could under this bill put forth every bit of intelligence in them with the greatest integrity, and then in case of there being some slight infraction of the law, instead of your having some small penalty, some minimum penalty that the man could stand, you would bring that man down here and haul him into the court and pass a sentence upon him of a criminal nature, and put that man in the penitentiary for that offense. Gentlemen, that is unwise legislation, to my mind. I may be in error, but I submit that for the consideration of this committee.

I want to go on now to the question of the unjust features in this bill in relation to grades as well as in relation to standards. We were told day before yesterday by those in favor of the bill that in arriving at the grades, at the size of packages which should be held to be packages of concealed apples, New York had established a barrel, by law, which had been standardized, and from that they have arrived at their unit of apple measurement. Their unit of apple measurement is the New York barrel. Therefore, they deduced from that their other measurements. I want to say for the benefit of these gentlemen that when they come to the question of standard packages there is something they appear not to have known, which is really a surprise to me, and that is that our Government has a Bureau of Standards for the purpose of regulating and looking into this

question of standard packages, and what shall be that measure of content between buyer and seller. We have such a bureau as that right here in Washington, and I have been given to understand that that bureau has not been approached with regard to the measures in this bill. I may be in error, but I have been so informed.

I want to ask this committee if, in their judgment, it is right that they should arrive at their standard unit of measure by taking a standard practically which has already been adopted, as they say, by law in one territory, if in their arrival at this unit, and deciding on the measures whereby they come to this new box which has never been tried, they impose injustice upon another territory which has already adopted a box, and which has proven by a long series of years of systematic effort that that box meets the requirements of their conditions? I ask you gentlemen of this committee whether, in your estimation, there is not injustice imposed upon those who have brought the packing of apples up to its highest standard, and whether their standard should not be taken, and not that of those who are groveling along in that which is low? There is the injustice of this measure.

We have been compelled by experience to change that pack from time to time, and that is the reason why these boxes have been made of different sizes, but there have been no changes made in the Northwest for several years, because we have settled down upon the special box which we have packed and used successfully, and we have adopted that box, and have borne the expense of a school, for the purpose of educating the packers how to pack apples in that box, and the State also bears part of this expense. We have been doing that for years in the Northwest, and I want to say, with all respect to the men who yesterday and to-day contradicted the statement and said they could pack them in any kind of boxes, with all respect to their judgment, that while I do not charge them with anything malicious in that statement, I do charge them with ignorance. Their experiences, of which they have given you a history, have been only in a few tests and trials with a small number of apples. That is true, and they will say that it is so.

At no time have they attempted to put these apples up scientifically two years in succession. They dare not say it. I know the history of all these box districts. Now, to set out and make a test of a few apples as to whether or not they can be packed in a certain box is no test at all. I can take a few apples, if you will allow me to pick them out here, and I can pick apples that will fit any box. It is a question of the different conditions which may arise, and you can not get any box which is a perfect box; it is a mathematical impossibility. The question is to arrive at that box which the nearest meets the conditions from time to time.

It was suggested here, in order to support that claim, that the orange growers found they could pack their fruit in any box. I want to pay my respects to that proposition, as I have had to do before. Every time I have met these gentlemen this fall they have come up with that argument. I want to submit it to an impartial board here. When you come to taking the pack of oranges, it does not compare with the pack of apples. The orange is a round product. Is not that true? It is practically round, and it can be placed in almost any kind of a capacity and made to fit. There may be some orange men here who can speak on that. But I do call your attention to the

fact that the characteristics of an orange and an apple do not compare; that there are differences in shape, and that therefore it is a mathematical problem to figure that out, and experience will demonstrate to you which is the best box to use.

We have gone through this for a number of years and have arrived at a box which we claim comes the nearest fitting the conditions for our various needs from year to year.

Mr. POINDEXTER. While you are on that point, how about the point that was raised yesterday as to an orange being more or less soft, and capable more or less of being pressed in more than an apple?

Mr. WHISTLER. I have this to say regarding that point, also. I have been in California and watched those people pack oranges. We aim to give considerable swell in the box package, necessary to holding those apples in a proper shape, and we have discovered this, that it is utterly impossible for us to give such a swell to our apples as is used in the packing of oranges. Whether or not that is deleterious to the oranges I will leave to the orange growers to determine, but I do know we would not or could not use such a box for an apple box as is used for oranges. We have been through that and found it will not work. Therefore, any argument that may be brought up in favor of an orange pack does not apply for one moment to the packing of apples. Are there any further questions along this line of the pack?

Mr. COCKS. Right there, will you just explain to us a little bit how the Colorado people get along with their boxes? Do their apples differ in size from yours?

Mr. WHISTLER. Now, I want to tell you something, and I want to tell it frankly, and I want to give you gentlemen honest information. There sits a man right there who has stated that he handles about 80 per cent of all the western box apples. Now, let me be careful about that. I remember the statement he made at the time, and I concede it to be correct. I say this, that he handles more box apples, perhaps, than any man in the United States, and if I go wrong, he can correct me. I have his statement made day before yesterday before this committee, that Colorado was still using, in the main, the jumble pack. Am I not right? Is there anyone who wishes to dispute it? The jumble pack is what you people down here call the barrel pack. This is the top of this box [illustrating with apple box]. They will take this box and they will put a line of apples in the bottom, here, maybe two lines of apples, sometimes one facing, and sometimes two. Then they put those apples in there in bulk, as you put them in the barrel in the East, and nail that top down over them [illustrating]. Am I not right? Does anybody wish to dispute that? They have stated that that was the manner in which they packed apples in Colorado. That is not a scientific pack.

Mr. COCKS. Do the apples ship as well in a jumble pack, or do we not get as many apples?

Mr. WHISTLER. We have the box here, and can make a demonstration. That is a nice point.

Mr. HAWLEY. It is not as expensive to pack that way. It does not require the skill or the time.

Mr. WHISTLER. Yes; that is true; but that would not matter unless there was some other advantage, in getting the apple before the people perfectly, commercially. We claim that those apples must fit

in the box and size right. Do you see the point? In order to make them fit, you have got to have them size right; but with a jumble pack, you can put 3-inch apples and 2-inch apples and 2½-inch apples and 4-inch apples all in one box. Do you see the point? Now, gentlemen, that is not a scientific pack, and we say that Colorado does not use a scientific pack, and they will not deny it; and, just as Mr. Gibson said yesterday, they are fast working out of it. They are commencing to tier their apples and when they do that they run up against the problems that we have had in the Northwest in the past years, and it will involve those problems which we have been thrashing out up there, and I say that these gentlemen are not qualified to be expert judges on the question of packing.

Mr. NEWELL. You might also state that Colorado is shipping a good many in barrels.

Mr. WHISTLER. We were informed that Colorado was shipping a good many in barrels. Now, I have here this card, which I got yesterday from some one in the committee—from some member of the committee, I do not know who—which has on it a picture of a box of apples. This is a picture of a prize box of apples.

Mr. HAWLEY. That was furnished by a Representative in Congress?

Mr. WHISTLER. Yes. There are shown some of the principles of packing, and I would like to call your attention to this. There is the box that won the prize for apples, and this shows principles of packing that those men will call good; but at the same time they are far from being those principles which we will be compelled to work under when the Government sends its judges out there. The point is that those apples should touch in here [indicating on picture]. I can take a box of apples packed in that shape—that is a four-tier apple box—and I will put eight more apples in that box, because this is not scientifically packed. It is not done according to mechanical principles. It is not done according to principle at all. I will shake those apples around there and put eight more apples in that box. So that this bill is weak in that it does not protect the consumer in saying how those apples shall be put in there in order to give him the right and proper contents, and he can be defrauded on this point just as well as on the point of capacity of the box.

Mr. HAWLEY. Can you give us any idea how many more apples you would get in a box packed in that way than you would in a box with, say, two facings and the jumble pack?

Mr. WHISTLER. Yes, sir. Not in this box; I will say in the Colorado box. I used to live in Colorado, and was secretary and treasurer of their association. Now, we will take that box, with one facing in there, and the jumble pack, and we will place the apples in tiers so as to pack up those odd spaces which are in there, and we will take an apple which will pack from 196 to 212, and we will put you in there 16 more apples. What does that mean? It means about 8 per cent of the entire contents of that box. And have you any provisions in this bill for protecting the consumer on these questions? Have you or not?

Mr. POINDEXTER. I understood you, Mr. Whistler, to say that in making that Colorado pack they start at the bottom?

Mr. WHISTLER. Yes; we can call it the bottom.

Mr. POINDEXTER. They put in a tier?

Mr. WHISTLER. Yes.

Mr. POINDEXTER. And then they turn the box over. They put in the jumble pack and nail on a stiff board, and that becomes the bottom?

Mr. WHISTLER. No, sir; they use the same board for both sides. They lay it with this side down and put the apples in, one or two tiers for the facing, and then they turn the box over and fill it up and nail this side on. Then when you open up the top, there you have got a face top. That is just the way they face a barrel in New York.

Now, I want to go back and talk on the justice and merits of the bill. I was dealing with the question of standardizing. I say that we have approached the nearest to a bushel that we have found it practical to do and still retain scientific principles in our pack. We are here to make a demonstration. A great deal has been said here before this committee about the contents of this package which you gentlemen are called on to standardize, and it has been charged that it does not hold a bushel; that it does not hold a good, rounded bushel. That charge has been made here before this committee. Gentlemen, we have here this box of apples, and I want to ask these gentlemen now if there is anything out of proportion in that box of apples. I will ask Mr. Gibson, who is the best expert on boxes and bulges, if there is anything wrong with that box?

(The box referred to was here placed on the committee table and examined by Mr. Gibson.)

Mr. GIBSON. I would like to ask if this box has been measured?

Mr. WHISTLER. Here is a rule. [Offering a two-foot rule to Mr. Gibson.]

Mr. GIBSON. If the chairman would allow me to say a word, I would like to do so.

The CHAIRMAN. Certainly, Mr. Gibson.

Mr. GIBSON. This box has been opened up, as you can see by the nails here [indicating], and it is a specially prepared box, brought here to deceive this committee. You can look for yourselves. I do not believe any box should be used here in a demonstration unless that box was selected on the Washington market by members of your own committee.

The CHAIRMAN. Can you tell by measuring it whether it is a standard box?

Mr. GIBSON. Here are some other boxes that they have here. You can see that they have all been tampered with.

Mr. POINDEXTER. What do you mean by that, Mr. Gibson? What object do you claim they had in view in tampering with them? I wish you would explain that to the committee.

Mr. GIBSON. They bring some real large-sized apples here to measure—

Mr. NEWELL. You can see the number in the box. Here it is, "96." Is not that an average size? Do we not send to this market boxes containing 72 and 88 apples?

Mr. GIBSON. When you come to 72s and those large sizes, I should say that the Hood River country raises more than any other section, and they probably did not raise one carload of this size in their whole product.

Mr. NEWELL. But a 96 apple is a good, marketable size?

Mr. POINDEXTER. The gentleman has said that the box has been tampered with in order to deceive the committee.

Mr. GIBSON. Here is the box. You can look at it for yourselves.

Mr. POINDEXTER. Just a moment. I want to ask you a question. You said they had brought in an extra-large size of apples. If they wanted to bring in an extra-large size of apples, could they not pack them in a box without anyone having to unpack it, and have the nail holes in it, as you refer to?

Mr. NEWELL. If Mr. Gibson and the chairman will allow me, I would like to explain this. The day that I left Portland I asked one of my neighbors, who is one of the best packers of apples in that country, if he would not send a box of apples here, and he went to his packing house and put up this box and sent it on by express, and he put an extra covering around the outside to protect it. All of you know how gently and carefully the express companies handle these packages. He put an extra covering around it, and that had to be taken off, and that explains the condition it is in, and why it looks like it had been tampered with or opened.

The CHAIRMAN. I would like to ask Mr. Gibson to answer the question that I asked him a moment ago, and I think perhaps it would make the matter clear to the committee. Can you not measure the box now and let us know whether or not it is of the standard Oregon size?

Mr. GIBSON. I think so, if you have a rule.

(Mr. Whistler here handed a rule to Mr. Gibson.)

Mr. NEWELL. Perhaps that rule has been cut off.

Mr. RUCKER. Has that rule been tampered with?

The CHAIRMAN. Has the rule been tampered with?

Mr. GIBSON. I would like to ask Mr. Whistler the exact size of an Oregon box.

Mr. WILSON. It is $10\frac{1}{2}$ inches deep by $11\frac{1}{2}$ inches wide and 18 inches long, inside measurements.

Mr. Gibson. That makes how many cubic inches?

Mr. WILSON. 2,173.5.

Mr. GIBSON (after measuring box). This is $10\frac{1}{2}$ inches deep by $11\frac{1}{2}$ inches wide and $18\frac{1}{4}$ inches long, inside measurements.

Mr. NEWELL. It is how long?

Mr. GIBSON. $18\frac{1}{4}$ inches long. It is a quarter of an inch longer than the standard Oregon box.

Mr. WHISTLER. It probably has a thinner head. We do not wish to do anything of this kind. There is no tampering proposition here.

The CHAIRMAN. It is a quarter of an inch longer, and you are willing to concede that perhaps thinner boards have been used?

Mr. GIBSON. No; I think the boards are of standard thickness.

The CHAIRMAN. Would the difference of a quarter of an inch make any material difference in the capacity of the box?

Mr. GIBSON. Yes; it would make quite a good many cubic inches difference.

Mr. WILSON. The thickness of this board is three-quarters of an inch, and the usual width with us is seven-eighths of an inch.

Mr. GIBSON. The difference is this width here [indicating with rule].

The CHAIRMAN. Aside from the difference in the length, in what way could the box be tampered with so as to have a greater quantity of apples in it than if it had not been tampered with?

Mr. GIBSON. I will tell you how. It could be packed unusually solid and tight, heavier than they usually are; and these are all large-sized apples; and you all know that in measuring apples of a large size in a half bushel measure there will be more space between apples than there will be with an average-sized apple.

The CHAIRMAN. Pardon me a moment. Would not that same vacant space obtain as to the box just as it would with the measure?

Mr. GIBSON. I do not think so, where they are tiered in and packed with the diamond pack. I do not know whether this is packed the diamond pack or not, but I think it is.

The CHAIRMAN. In your judgment, how many more apples could be placed in that box by exerting the greatest pressure which would be possible without crushing the fruit, than would naturally be placed in it with just the ordinary pressure?

Mr. GIBSON. If this was packed the diamond pack, which I think it is—I could not tell without looking at it—you could put at least a dozen more apples in here.

The CHAIRMAN. Very well.

Mr. GIBSON. Probably 85 per cent of the apples grown run a smaller size than these.

The CHAIRMAN. If it were not packed with the diamond pack, how many more could you put in?

Mr. GIBSON. How many more could I put in than—

The CHAIRMAN. How many more under extraordinary pressure than under ordinary pressure?

Mr. GIBSON. If it was packed unusually heavy, you mean how many more could be put in?

The CHAIRMAN. Yes.

Mr. GIBSON. Almost the same, I should say; and press them a little tighter together and give them a little more bulge.

The CHAIRMAN. In case of a box packed with those Arkansas Blacks that we were shown yesterday, would it be possible to make a sufficient difference by specially packing them?

Mr. GIBSON. Yes, sir, it would; in any box or with any size. You can put more apples in any box of any size if you put extra pressure and pack them extra tight.

The CHAIRMAN. Are you ready to express your opinion now, or would you rather wait until the box is opened before stating to this committee your judgment that the box has been specially packed, and contains a greater number of apples than the ordinary commercial box of that size would?

Mr. GIBSON. Mr. Chairman, it looks to me as though the lid had been taken off and the side had been taken off. You can see by the nails; and I believe it would be an unfair sample to experiment with. There are Washington apples on this market, plenty of them, and I believe if your own committee would send out and select the boxes at random on the Washington market, it would make a fairer test than this.

Mr. HAWLEY. I would like to ask this. We have a 64 box from Washington. This is a 96 box.

Mr. GIBSON. Yes.

Mr. HAWLEY. If I understand the way that is packed, it is packed in rows.

Mr. POINDEXTER. He says it is packed with the diamond pack.

Mr. GIBSON. I do not know whether it is packed in rows or not, until I have had it open so I can see it.

Mr. HAWLEY. That box would have to contain that many apples because there would be so many rows and so many tiers and so many apples in each row, and the number of apples in the box guarantees the contents of the box, and you could not get any more apples in there because you could not budge the rows, anyway.

Mr. GIBSON. If it is packed with the diamond pack you could put more in there.

The CHAIRMAN. Suppose you open the box and see whether it is packed with the diamond pack.

Mr. WHISTLER. Here is the point I have forced them to admit, and that is what I wanted to bring before you in my next point, that it is not within the provisions of this bill to do the very thing that this bill was originated for, to protect the consumer. How does he know, when he buys that box, that it is packed with the diamond pack, and whether there should be in there 8 or 9 or 10 or 12 more apples, as Mr. Gibson says? The purchaser buys them without inspecting.

(At this point a second box of apples was placed on the committee table.)

The CHAIRMAN. Is the box just placed on the table a box that was bought in the open market, Mr. Monroe?

Mr. MONROE. Yes, sir. There is one apple out of that box. Mr. Lamb ate that.

Mr. WHISTLER. Now, anticipating this very thing I went down and bought this box [indicating second box] from a dago down here in the market. Those apples were packed last fall, and as a natural consequence they have shrunk. That is why I wanted the two boxes here. That box is nothing more than a standard box that they handle, put out in the fall of the year when we ship apples.

Mr. HAWLEY. What did you state a while ago was the cubic contents of the Oregon box?

Mr. GIBSON. It is $10\frac{1}{2}$ by $11\frac{1}{2}$ by 18 inches inside, or 2,173.5 inches, struck measure, without any distension as to the box. That box there [indicating first box], as I figure it, contains 2,263.68 cubic inches.

Mr. HAWLEY. The box contains 96 apples, averaging 23 cubic inches to the apple.

Mr. GIBSON (measuring second box). This is a quarter of an inch longer, but it is not far out of the way.

Mr. NEWELL. I wish to call the attention of the chairman to the fact that this box bought on the local market here measures just the same as the one which he charged was specially prepared.

Mr. RUCKER. Where is that second box from?

Mr. WHISTLER. That is from the State of Washington.

Mr. POINDEXTER. I understand that that was originally from the State of Washington, but was bought here in the local market?

Mr. WHISTLER. Yes.

Mr. HAWLEY. From what grocer or dealer did you get that box?

Mr. GIBSON. We are willing to make any demonstration they desire with this second box.

The CHAIRMAN. You might proceed with the demonstration. We do not want to spend all day on this.

Mr. STANLEY. Let them demonstrate with both these boxes.

Mr. WHISTLER. Yes; I want to demonstrate with both of them, because the law does not say whether the box shall be of this type or of that type [indicating].

Mr. HAWLEY. I understand that these two boxes have the same dimensions?

Mr. WHISTLER. Yes.

Mr. NEWELL. I would like for the committee to see this box as it is opened.

(The first box submitted was here opened.)

Mr. WHISTLER. That is not a diamond pack. It is a straight pack.

Mr. NEWELL. A regulation straight pack.

Mr. WHISTLER. It is not a square pack, but it is a straight pack. There is no diamond pack about it.

Mr. POINDEXTER. What do you mean by a square pack?

Mr. WHISTLER. Where one apple rests on top of another. It is a very unscientific and poor pack.

Mr. POINDEXTER. Which is the most approved pack?

Mr. WHISTLER. The diagonal pack, by all means.

Mr. POINDEXTER. Is that box packed with an approved pack [referring to first box]?

Mr. WHISTLER. The diamond pack is made this way [illustrating]; you see, packed that way. You have a contact there and a contact there and a contact there [indicating]. That is where you get the name, "diamond pack." You have three points of pressure there. Now, as to this box [referring to second box], I want to say that we have never looked inside of this box. It came up here from the commission merchant, and nobody has looked in this box since it started from home.

(The second box was here opened.)

I want you to concede the fact that there was an apple gone from that. The same thing happened to me at Norfolk, Va.; when I went to make a demonstration there I found that two boxes were gone, which had contained apples that won a prize at Spokane, Wash.

(At this point a half-bushel measure was set upon the table, and 48 apples were counted out of the second box, the paper in which they were wrapped being taken off, and the apples placed in the half-bushel measure).

Mr. ROTHWELL. There are just half of them [indicating apples in half-bushel measure]. There they are. There is the kind of measure you get, gentlemen.

Mr. WAGNER. May I now call attention to one fact as indicated in the proceedings of the first day? The question has been raised as to the Bureau of Standards. They said that there is no standard for heaped bushel here in the United States, and that it was not within their province to dictate what the heaped bushel was, but the evidence on the first day does show that the State of New York and the State of Michigan have recognized the fact of the heaped bushel, while every other State east of the Rocky Mountains recognizes the custom. In the State of Michigan it is provided that all things sold by heaped measure shall be sold in certain dimensions, the dimensions being one-half of the Winchester bushel, and that the measure shall be filled and a cone built upon it, the top of the measure being the base of the cone, and the goods heaped upon it

to such an extent as they can be heaped without their rolling off. If a test should be made I think it should be made under the only precedent which we have established.

The CHAIRMAN. The committee will take notice of what you have to say.

Mr. WHISTLER. Now, if the gentleman is through, I wish to call your attention to the point that I suggested a moment ago, and then we will take some other box which we have recently packed. That box was packed away last fall. There is not a gentleman here who will not admit the shrinking of apples in contents. That apple has perhaps had three months to shrink in. Now, I want to ask if the pack in this box is not the same as the pack in this bill? Now I want to do the same thing with the box that we brought.

Mr. WAGNER. Why do you not empty those apples out and put the other half in the measure?

Mr. ROTHWELL. Let us fill this measure up until we get it heaped up the way the merchant would make it, and then empty it and see how near you can come to filling it that way with what you have left; see how near you can come to measuring out a bushel out of that box. Let us fill it up until it suits the merchants themselves, and then see how many you have in the next half bushel.

Mr. HAUGEN. Do you contend that it would be filled better than this measure is?

Mr. ROTHWELL. Yes, sir.

Mr. HAUGEN. As the merchant would sell it?

Mr. ROTHWELL. Yes, sir.

Mr. HAUGEN. Fill it up, then, as the merchant sells it, and then see how many you have in the other half bushel.

Mr. WHISTLER. I shall insist upon having the merchant here.

The CHAIRMAN. The witness is making his demonstration. He will make it in the way he desires to.

Mr. WHISTLER. Very, well; then that point we are going to waive until we get back to it.

Mr. HAWLEY. I suggest that you put the other apples in that half bushel. The others may be a trifle larger in size.

Mr. WHISTLER. They should be.

(At this point the first half of the second box was emptied out of the half-bushel measure, and the other half of the same box was put into the same measure.)

Mr. WHISTLER. Now, we are short one apple.

Mr. GIBSON. No; you put one apple in twice.

Mr. WHISTLER. Very well.

The CHAIRMAN. We must close this matter up within an hour at the most, and I am anxious to have you proceed as rapidly as possible.

Mr. WHISTLER. Now, gentlemen, there is the demonstration from that box which was packed last fall in that manner. Those are one of the very smallest apples we use, which would give the very smallest content when put into a half bushel.

Mr. COCKS. I would like to ask the witness if that is the sized half bushel that would be a part of our New York barrel?

Mr. WHISTLER. This has the government standard mark on it [pointing to half-bushel measure].

Mr. COCKS. All right.

(The half-bushel measure was again emptied, and half of the apples in the first box produced were placed in the half-bushel measure, the paper wrapping being first taken off each apple.)

Mr. WHISTLER. There is half the box.

Mr. MONROE. That is heaping.

Mr. ROTHWELL. That has not got so much on top.

The CHAIRMAN. The committee can see what is there. Proceed with the demonstration.

Mr. ROTHWELL. All right. There ought to be at least five more apples on there.

(The half-bushel measure was again emptied, and the other half of the apples from the first box produced were placed in the measure.)

Mr. GIBSON. There is the other half.

The CHAIRMAN. Let the witness proceed.

Mr. WHISTLER. Now, gentlemen, there is our demonstration, which we have made, and I want to say further that I made a demonstration before the annual convention of the National League of Commission Merchants, and before doing so I took one box down to a man who was retailing apples, a merchant on the street retailing apples, and I filled that box, filled it just as near to that as I could see. I asked him if that box held such measurement as he dealt out to the public, and he said "No; I would take three apples off of there if I was selling those apples."

Mr. POINDEXTER. He probably would.

Mr. WHISTLER. That is what I say. Those are the points we wish to make. We contend that when you go into the market and buy apples, that is the measure they give you. If they sold those apples by the half bushel that is the measure they would give you, but there are few of those apples that go into the market and are sold by the half bushel, and it is a question with us of an arrangement of those box packages. We are dealing with this box, just as a man is dealing with the box in selling oranges, and he marks the number of oranges on his box and sends them to the consumers that way. Those are the points we wish to make here. When we have gone through our experience as we have, and find we come as near filling the requirements of the trade in the box as that fills right there—and which is on the market what they will give, and I am willing to take any merchant's report upon that matter—I say we have got the right standard.

The CHAIRMAN. How does that measure out with the peck and the half peck?

Mr. TITCHENAL. I can answer that question, if you will allow me to. You fill a half-peck measure with them and you will have a lot more apples on top in proportion than you have with the larger measure.

Mr. WHISTLER. Those are the points we make upon the standard package being a standard measure.

Now, as to grading, in the grades set down in the Lafean bill it is recommended that a $2\frac{1}{4}$ -inch apple shall be marked "U. S. Size A," as the highest grade which can be given. It was evidenced before this committee yesterday that at least 30 per cent of the apples grown in the Hood River and the Rogue River districts, and that country there, were larger than a 3-inch apple. I certainly am correct in that. Now, what proportion of our apples will run $2\frac{1}{4}$ inch? They are grading on differences of a quarter of an inch. What per cent of our

apples will run 2½ inches? I would like to have someone else answer this besides myself, because I might be considered an incompetent witness in that matter.

The CHAIRMAN. The committee will act on the presumption that you are telling the truth.

Mr. WHISTLER. Very truly. That being so, I will say that about 40 per cent of the apples from Hood River—that is, those which we put out in those boxes as fancy apples—will run over that size. Forty per cent of our crop at least is above 2½ inches and up to the 2¾-inch standard, and if any of these dealers, now, who have been dealing in these northwestern apples, differ with me, they are at liberty to correct me. I am speaking of the 2¾-inch apples. Now we are coming down to that apple which is 2½ inches, which is adopted here as your highest standard, and I want to say that the 2½-inch apple is the apple which packs only four tiers in our box, and when the buyers buy from us they require that we furnish at least 75 per cent of them up to the 2½-inch standard, leaving us only 25 per cent of our crop. That is what we call buying on a three-quarters basis. We talk about buying on a three-quarters basis, which means we are allowed to put onto them only one-fourth of the purchases they make which shall run below 2½ inches. Therefore they are demanding that three-fourths of our grade shall be up to the highest standard that is put in this bill, and 40 per cent higher, and 30 per cent they concede are up to still another grade. Now, there would a little contraction come in there; about 5 per cent.

Mr. HAUGEN. Has the size of the apple anything to do with the quality of the apple?

Mr. WHISTLER. It has if you are handling fancies. In the grades of fancies they sometimes try to make that point.

Mr. HAUGEN. Will the 3-inch apple sell for more than a 2½-inch apple?

Mr. WHISTLER. It will sell for more, generally. There is a point that I want to come to, that the biggest per cent of the apples from the Northwest district are bigger than your best grade that you have got down here; and yet you come up to us and ask us to take that as your highest standard of apples, and then you say that in order to protect ourselves, we can mark on the outside of our box whatever we have in it. Gentlemen, they want the indorsement of Uncle Sam to an apple of that sort as being the height of perfection. What are you giving these fellows down here all the advantage of government support for and not giving us the same?

We wish you, if you do this thing, to make more grades here, and not try to pull the Northwest or Oregon down from the high standard to which they have attained in growing and shipping, but give us this which we have attained; give us simply the right of competition, which is all we are asking for. We are willing to meet them on competition, but we do not want Uncle Sam to give an advantage to these fellows over us who are in the advance from a scientific standpoint. Those are the points we want to make. I should insist upon two or three grades higher than the grades in this bill before you make your highest point of perfection.

Now, back again to another point. I have overlooked one point. They throw out the point that they want to unify the packages and then they say to us, "If you do not want to accept the provisions of

this Lafean bill which will require you to pack a box of 2,342 cubic inches, you can mark on your box 'short box,' or you can mark it with the cubic contents that the box contains." Now, do they not propose one thing and then throw the bars down and tell us to go and do the other thing? First they come before you and say they want to unify the package. Then they say to us, "You can use your own box, but you must put on it the words 'short box,' and then it is all right." I had the pleasure of asking one of these gentlemen at Norfolk what would be the result, and like an honest commission man, as he was, he said, "In two years they would put you out of business," and that is what we knew. That is why we are here fighting. We know that they would put us out of business. The minute you put out a box with the words "short box" on it you put it out under a ban and a taboo, as it were, and you advertise to the public, "Get away from me," and that is what he meant.

Mr. HAUGEN. You would simply mark the number of inches that it contained, as under the pure-food and drug act. You can not sell three-quarters of a quart for a quart.

Mr. WHISTLER. That is true; but they do not have to put the number of inches on the box under that act; they just say, "United States standard." Now, they want to compel us to put a brand on the box and to put on it the number of inches that is in there. Will not the public immediately become excited the minute they see such a thing on there?

Mr. POINDEXTER. The mere absence of the government standard mark would be a disadvantage.

Mr. WHISTLER. At once; at once. You give them an advantage that you do not give us. It would put us out under a taboo.

Now, back to another question. When Mr. Hale was on the floor day before yesterday he was asked by some member of this committee why they needed a larger box. His reply was that Oregon apples were coming so high that he said they needed more apples in the box. Is not that true? Is there anyone here who disputes that question? He answered that in that way. Mr. Bahrenburg, when he was before the committee, asked if the Northwest could get the same price for the apples if the box was enlarged. He said, most emphatically, yes. Then I want to know, if they are going to get the same price for apples if they are put in a larger box, what did Mr. Hale mean when he said they wanted a box that was bigger, because the Northwestern apples were getting too high? Now, there are the reports of those two gentlemen.

Gentlemen, the point is simply this. I will admit this: That in course of time we would get just as much for this box if we put more apples in there, when the public became acquainted with the fact of those apples being in there; but I will not admit that it can be done in one year completely, nor in two years, but eventually we would come to it.

The CHAIRMAN. Would you have any objection to the box prescribed, if it was absolutely the same size as the one now in use in Oregon?

Mr. WHISTLER. I object to the bill as a whole. I certainly would; yes, sir.

The CHAIRMAN. You would?

Mr. WHISTLER. Yes. Anything further on that?

The CHAIRMAN. Mr. Cocks suggests the question as to whether the bill could be amended in any way so as to meet with the approval of the people you represent.

Mr. WHISTLER. So far as standardization of packages is concerned, that can be done, for the reason that it is a definite proposition. Measurements are a definite proposition, and the foot rule tells the tale; but when you come to the question of grading fruits it is whims that tell the tale, and I should hate, gentlemen, to see any proposition coming up here wherein an ignorant, innocent man, using the best integrity that is within his blood, passed up an article to go before the public, and then came down here and found his fruit condemned, so that he would be haled into court from the far distance on a proposition which this man, like a priest, may have determined was the standard. The package is all right, gentlemen; we will accept it.

Mr. COCKS. Suppose we eliminate the variety. Could we not provide for sound apples of uniform variety, and cut out the name of the variety? Would that meet your objection?

Mr. WHISTLER. You will have to cut off the "normal color," too. I would not like to allow anything like that.

Mr. COCKS. Do you not think you people would have a great advantage on the color proposition?

Mr. WHISTLER. We would if you would give us free competition.

Mr. COCKS. There is no part of the country that competes with you on the color?

Mr. WHISTLER. No, sir. If I was to determine this from a personal standpoint, it would be a different matter, but these provisions are to cover all sections of the country. Personally I would waive that point, because we know we have the best of you gentlemen down here on that proposition. But I want to be just.

I am through as to the injustice of these measures, and now I want to go back, and I hope I shall be short in time and to the point, on this bill not meeting the provisions for which it is proposed. Those points have been covered here by the discussions that have already taken place.

As to the uniformity of packages, the argument was made here that they wanted to unify packages, and then they put in a measure throwing the gap open here, whereby we slip right straight through. Now, first, it will relate to the contents of this package. They want a box here now which is 13 per cent bigger than the box already in use, and they say they want it for the good of the consumer, and then they say nothing whatever about the method in which those apples shall go into the box. We have prepared a box here now, and we wish to give you a demonstration while on this point, and if anybody challenges it we will make the demonstration. We went out on the street and bought a box of apples—I think it is marked from Virginia—and we have poured them into a box in bulk, just loose, and have brought it here to make this demonstration. We will put those apples in a box in a scientific manner and put twenty more apples in that box. There is no provision in this bill as to how the apples shall be put in the box, and a man can defraud the consumer by the method in which he puts his apples in the box as well as by the contents of the box.

Mr. COCKS. Can not that be stated by stating whether it is jumble pack or tier or diamond pack, or something of that sort?

Mr. WHISTLER. The bill does not say anything about it.

Mr. COCKS. I understand that, but the bill is not a finality. It is not something that can not be changed.

Mr. WHISTLER. No; it might be changed on that point. It is simply a question of advisability. It takes experience to get to that, but it will finally be reached as a result of commercialism. It is the outgrowth of this long survival of the fittest. If you make this arbitrary, you simply confuse the point which I raised a short time ago.

Mr. PRATT. What would you say about grading by figures instead of by letters and making the grades "U. S. Size 3" and "U. S. Size 3½"?

Mr. WHISTLER. I care nothing about that. I would regard that as being irrelevant or immaterial, I would say, for the reason that judgment must be passed upon these points, and the matter is not affected by letters or figures or by words; it can not be; and so far as those are concerned, those are minor questions. If you are going to determine upon this point, which in my judgment is the main leading point, do that, and then let us consider the other.

Mr. HAWLEY. These were fancy apples that came in one of these other boxes. Now, which is the well-colored specimen of that variety [holding up three Red-Cheeked Pippins]?

Mr. COCKS. We would like to have the expert answer on that.

Mr. ROTHWELL. You ask the question. Answer it.

Mr. POINDEXTER. He just stated it was impossible for him to answer.

Mr. COCKS. He did not say that it was impossible for him to answer.

Mr. POINDEXTER. He told you how the greatest expert in the country was fooled.

Mr. HAWLEY. There is a relation between the color of the apple and a \$500 fine or a year's imprisonment.

Mr. WHISTLER. That is what disturbs us.

The CHAIRMAN. Were there any other points you desired to bring to the attention of the committee?

Mr. WHISTLER. Personally, I will submit the problem to you. I have taken up your time and tasked your patience sufficiently. I thank you for your attention. I often thought that it would be nice to come down here and be a Congressman, and all that, but I see you are up against a wearisome proposition, and I hope never to come. [Laughter.]

Mr. STANLEY. That is the wisest word you have said.

Mr. NEWELL. We would like to have address you next, Mr. Chairman, Mr. E. R. Lake, assistant pomologist of the United States Department of Agriculture, who has had a very wide experience in judging fruits in different parts of the United States, and place him upon the stand to answer a question or two.

TESTIMONY OF MR. E. R. LAKE, ASSISTANT POMOLOGIST UNITED STATES DEPARTMENT OF AGRICULTURE.

(The witness was sworn by the chairman.)

Mr. NEWELL. Now, Mr. Lake, could you go into New England, for instance, and say what the normal color of a Baldwin apple should be, or into any other section of the United States, or into all the sections of the United States, and say what the normal color of the Baldwin apple should be?

Mr. LAKE. No.

Mr. NEWELL. Would it be possible, in your judgment, for anyone to do so?

Mr. LAKE. I think not, on general principles. It would be, incidentally, possibly.

Mr. HAWLEY. Would the normal color be the same every succeeding season?

Mr. LAKE. No; not if we know what normal color is.

Mr. NEWELL. Is there any established standard of color?

Mr. LAKE. Not except in the old authors, perhaps thirty-five or forty or fifty years ago.

The CHAIRMAN. Does that apply to all apples the same as to the variety Mr. Newell referred to?

Mr. LAKE. I think so.

The CHAIRMAN. Do you wish the committee to understand that the best authorities hold now that there is no normal color for any variety of apple?

Mr. LAKE. Yes; perhaps not put exactly in that sense. The descriptions of apples, as of all other fruit, have contained a more or less indefinite statement as to the prevailing color and its characteristic marks; but that does not stand from one season to another, or from one section to another, but only for that specimen described.

The CHAIRMAN. Do pomologists rely upon the color, in fixing the name of an apple, to any considerable degree?

Mr. LAKE. In what way do you mean, Mr. Chairman?

The CHAIRMAN. If a half a dozen varieties of apples were brought before you to name, what would guide your judgment in naming them?

Mr. LAKE. As new specimens, you mean?

The CHAIRMAN. No, as established specimens.

Mr. LAKE. As established specimens?

The CHAIRMAN. Yes.

Mr. LAKE. Whether they were Baldwins or Spies, for instance, or some other variety?

The CHAIRMAN. Yes. Do you know what that variety is [indicating an apple]?

Mr. LAKE. Yes; because I have had a chance to look it all around and compare it with a multitude of others here.

The CHAIRMAN. How do you know it?

Mr. LAKE. Because of its particular characteristics and its general form.

The CHAIRMAN. Does the color guide you?

Mr. LAKE. It has something to do with it; yes.

Mr. NEWELL. Would you state what the normal color of a red-cheeked pippin is.

Mr. LAKE. No, sir. These are normal in a way, for the season; but we have them from green to yellow, and fully as red as these are.

The CHAIRMAN. I suppose some apples maintain a uniform color more regularly than others. These Arkansas Blacks, for instance, which were shown to the committee yesterday, are usually a very dark red, are they not?

Mr. LAKE. Yes, I think that is true.

The CHAIRMAN. Are they ever anything else?

Mr. LAKE. There are seasons when they are not so dark—not black. There are seasons when they are light red, I should say, in our section. I do not know how that would be in Arkansas.

Mr. NEWELL. Do you know the name of that apple [indicating the third box of apples produced by Mr. Whistler]?

Mr. LAKE. No, sir; that is not a friend of mine.

Mr. NEWELL. Gentlemen, that is one of the best known apples in the United States, and yet he can not name it because it comes from an entirely different section from that in which he has been.

The CHAIRMAN. What is it?

Mr. NEWELL. That is the Grimes Golden, from Virginia; and yet it has no more resemblance to the Grimes Golden grown in the West than a Red-Cheeked Pippin.

The CHAIRMAN. Would it not have a resemblance to a Grimes Golden grown anywhere east of the Missouri River?

Mr. LAKE. Possibly; but I do not think there would be any certainty about it in that restricted district.

The CHAIRMAN. Are there any further questions?

Mr. NEWELL. Would you feel competent to go into any quarter of the country and name the apples on the market as you found them, as an inspector, and to say that that apple was absolutely true to variety or not?

Mr. LAKE. I can not answer that question very particularly. I would feel competent to pass upon the leading commercial varieties in our own district, where I have spent twenty years.

Mr. WAGNER. What is your district?

Mr. LAKE. The Northwest—Oregon, Washington, and Idaho.

Mr. NEWELL. Would there be in the Department of Agriculture any young men trained as inspectors who would be able to name the different varieties of the apples in the United States?

Mr. LAKE. There may be. I do not know about that.

Mr. HAWLEY. I saw in a magazine somewhere something regarding the normal shape of the Ben Davis, I think.

Mr. NEWELL. No; the Delicious.

Mr. HAWLEY. Yes; it was the Delicious.

Mr. LAKE. It represents five types of the apple as grown in the different sections of the country where it has come into commercial use.

Mr. WHISTLER. I would like to say, upon this question of normal shape, any shipper shipping into New York, and the question arising between himself and the jobber, that becomes, of course, the question to determine, and with a jury, and if they determine that the man, having used his best judgment and acted in the utmost good faith, has not put up a normal shape, he is subject to a fine and imprisonment for a failure in judgment on a subject on which experts must continually differ in the widest possible degree.

Mr. NEWELL. Just one more point I want to make, there. If we ship into New York we have got to go before a New York court to determine what is the normal size and shape of our apples.

Mr. COCKS. Could not that be obviated by stating the district in which these apples were grown?

Mr. NEWELL. Then how could a New York court determine——

Mr. COCKS. Oh, the New York federal court has to determine a lot of things that are a good deal harder to determine than that. This argument that we are listening to is just exactly like the arguments we heard against the pure-food bill; it is on the same line. It seems to me that the court could determine that just as it could any other question.

Mr. LAWEY. This differs from the matters under the pure-food law because there it is a matter of chemical analysis.

Mr. COCKS. I would like to ask you if you do not think that there could be some standards for the different varieties established that would be reasonably easy to execute as a law?

Mr. LAKE. You mean a standard as to variety?

Mr. COCKS. I will change my question. Do you not feel competent to pass upon any box or barrel of apples grown in the Northwest as you have the varieties out there?

Mr. LAKE. No; not any, because there are a number of new varieties.

Mr. COCKS. I mean as to the standard varieties?

Mr. LAKE. Yes; standard varieties.

Mr. COCKS. And would not that be true of the farmer in the eastern part of the country as to his standard varieties?

Mr. LAKE. Yes.

Mr. COCKS. That is all.

Mr. McLAUGHLIN. Have you ever had any experience in the commercial handling of apples, or is your knowledge of the subject from scientific investigation?

Mr. LAKE. No, sir; I am a grower and a shipper.

Mr. McLAUGHLIN. What has your experience been?

Mr. LAKE. It has covered twenty years in the Northwest, from prunes to apples and peaches.

Mr. McLAUGHLIN. How long have you been scientifically investigating this matter?

Mr. LAKE. About twelve or fifteen years.

Mr. McLAUGHLIN. How long have you been employed in the Department of Agriculture?

Mr. LAKE. About three weeks, this time.

Mr. LAWEY. He came from the Oregon Agricultural College here.

Mr. McLAUGHLIN. Where was your home before coming here?

Mr. LAKE. Corvallis, in the Willamette Valley, was my home for twenty years before coming here.

TESTIMONY OF MR. JAMES H. WILSON, REPRESENTING THE HOOD RIVER VALLEY APPLE GROWERS' ASSOCIATION.

(The witness was sworn by the chairman.)

Mr. WILSON. The apple box as described in the Lafean bill is the same box that we tried out pretty thoroughly and discarded twelve years ago. We have been trying, and finally succeeded in getting out of the slough of despond when it came to packing apples. We did not ship very many East, in fact did not ship any East then, but the dealers in Portland objected to the pack simply because when you packed a box and turned it over on the side—we had to use what is termed the offset pack—it was half apples and half holes. The swell

on our box, as demonstrated by the two half bushels, shows the difference between the shrinkage and the nonshrinkage of the apples. Our boxes are all packed with a swell of not less than an inch, and that, when the lid is put on, makes a half-inch swell on either side of the box, or in round figures about 100 cubic inches added to the cubic contents of the box.

Mr. Wheeler mentioned the Colorado jumble pack. Some parties at Hood River bought some Colorado apples the past season, and two men, Mr. Charles Castner and T. A. Baker, have been at Niagara Falls concerning the repack of apples for the past two months. As to the grading, A, B, and C, it seems to me that sounds very much like the brands of sugar or shingles. We pack "extra fancy," "choice," and "orchard run." On each box we stamp the number of apples, 45 which is a three-tier, 54 a three-tier, 64, 72, 88, 96, 104, 112, 120, 128, 136, 144, 150, 165, 175, and 200, or 17 different packs. We discarded the tier some years ago, about 1903, and have substituted for that the number of apples in each box, as they pack their oranges. I had something to do with that myself. Now, if anyone has any questions to ask I will try to answer them.

The CHAIRMAN. Has anyone any questions to ask Mr. Wilson?

Mr. WAGNER. Just one question. Has your association in the Northwest made any changes in your grading rules as compared with what they were the last year; that is, for the coming year?

Mr. WILSON. Yes.

Mr. WAGNER. Have you not discarded certain of your grades, and changed.

Mr. WILSON. Mr. Whistler, who is a member of that committee, can possibly answer the question better than I can. I believe he has the report with him.

Mr. WHISTLER. I have it.

Mr. WAGNER. I simply wanted to know whether there was any change?

Mr. WHISTLER. I will tell you what they did, and give you a description of it, in a very few words. At the Spokane apple show, wherein there were a large number of growers and representative apple men from the different associations, of whom I happened to be one, and Mr. Newell, of the state board of horticulture, was also one, the question of grades came up. Now, we had no official authority to establish grades, because we were not the legalized authority of the sections. We simply tried to get together because there had been confusion on this subject of grades, and we simply got together the best we could as representatives of these districts and agreed to certain rules as among ourselves, as the representatives, and agreed to submit them to our associations and recommend their adoption. We could not adopt anything.

Mr. WAGNER. You agreed on an orchard run?

Mr. WHISTLER. Yes; a grade of so-called orchard run; but there was nothing adopted.

Mr. MONROE. I would like to say, on behalf of the New York State Horticultural Association, that we did not adopt those. They were turned down.

Mr. HAUGEN. Do you find it necessary to change the grades from time to time?

Mr. WHISTLER. We have not, in our district, but it brought up an exchange of views between two of the districts of the Northwest, and it was to help them at this end. The commission men here said our grades were confusing.

Mr. HAUGEN. Would it be practicable, then, to adopt one grade for all times and all sections of the country?

Mr. WHISTLER. We have found it difficult to get permission to do it. When they put it up to their societies they refused to adopt them.

Mr. MONROE. It was a question of names more than anything else. They did not like to give up the "extra fancy" and "fancy," and adopt the "choice." The "orchard run" was to take the place of all other grades. If a grower would use "orchard run" he could not use "fancy" or "extra fancy" or "choice."

Mr. WILSON. Unfortunately, the apples that I had shipped have not arrived. I have on the way a box of 80 and another of 112, the 80's packed in a standard box, and the 112's in the special box, and I will guarantee you there is no put-up job and no monkey business in any way, and each one of those will fill the measure. I packed them myself.

TESTIMONY OF MR. L. H. TITCHENAL, OF CASHMERE, WENATCHEE VALLEY, WASHINGTON.

(The witness was sworn by the chairman.)

Mr. TITCHENAL. Mr. Chairman, while there has been a great deal of discussion over the box and the package, and so forth, I do not think it is very much use for me to say very much more about it. I think you people understand about the size of the box and the package, and so forth, and it seems to me like everybody that raises apples in the whole United States should pay some attention to this grading proposition.

I am surprised that the State of Colorado is not represented here. While they have the largest box in the United States, they certainly object to the grading rules just as seriously as we do. I have been in correspondence with them ever since the Colorado National Apple Show, and they do not think they can stand the grades. Now, for instance, you take the largest nursery in the United States, that of Stark Brothers of Louisiana. I bought 1,000 trees from them and they were to be Stayman Winesaps; and it turned out that I did not have a single Stayman Winesap in the whole lot. I shipped some of the apples back to Stark Brothers and they could not name them, because they had crossed the United States, and they were a different species from what grew on this side. They never have been able to name that variety of apples there.

The CHAIRMAN. I understand you to say that you bought Winesap trees and did not get Winesap apples?

Mr. TITCHENAL. No, sir.

The CHAIRMAN. Do you mean the committee to understand that the trees sent you were of a different variety?

Mr. TITCHENAL. They were a different variety. What I mean the committee to understand is this, that trees raised in this country and put into the Pacific northwest are so much varied in looks, and so forth, that they can not tell what they are.

The CHAIRMAN. But if the trees you planted had been grown in the nursery from which they started, would they have produced Winesaps?

Mr. TITCHENAL. Yes, they certainly would.

The CHAIRMAN. So that you are not charging the nursery firm with fraud in sending you a variety of trees different from what you ordered?

Mr. TITCHENAL. No.

The CHAIRMAN. You are simply calling attention to the fact that owing to the soil and climate and other conditions, the tree which is called a Winesap in Missouri, for example, produced an entirely different fruit when transplanted to the Pacific coast?

Mr. TITCHENAL. No, I do not mean for the committee to understand it that way. They were not Winesaps; but I do not know what they were. We were satisfied of that. I have some of the same trees that I got in a different order, which were Stayman Winesaps, and they have the characteristics of the Stayman Winesaps; but those others were not true to name, and they have not been able to name them because they look different from what are grown on this side, and they are a variety that we do not grow out there. What I mean to say is that the variety grown on this side, if there is a standard variety, you understand, if they get across the United States, changes so that you can not tell what it is. That is, the average man can not tell what it is. Now, I have attended a good many apple shows, and I think I know a little something about apples, and the variations in different districts certainly puzzle the best men we have in the United States, to name the apples.

If you undertake to grade, grading to size and color and quality, quality varies just the same in some sections as color does, and if you grade up, you know, taking "A" for a large-sized apple, most of your apples are in the poorest grades. You put your best apples down in the lower grades in order to get your largest apples up in the first grades, with the present bill. I do not think that this grading provision in the bill will hurt us in the Pacific northwest as badly as it will the people down this way, but I do not think it is fair to have such a bill as that, unless the apple growers, people that understand apples, should get together and try to come to some conclusion. The people of the United States do not know very much about fancy apples, I find. Mr. Gibson said that ninety-nine and nine-tenths per cent of them did not know fancy apples; so that if that is the case they know very little about the grading of apples and the packing of apples. We, out there in our country, have tried to establish a pack and a grade for fancy apples, and we think we have accomplished more than they have in the rest of the United States along that line, as well as in the size of the package and the uniformity of the package.

We no longer use what is termed the square pack. We discarded the square pack recently, and our apples now run from 45 to 250 in a box. I have apples coming here all the way from 250 in the box to 45 in a box. I got here to-day, and I am afraid those apples are going to be too late for our purpose here, but I would just like to show you the difference between the way they are packed and the way these boxes we have here are packed. We pack all apples, grading from 250 down to 45 in a box, so that they fill the box per-

fectly. If you were to make the box a little bit larger you would destroy the pack; you could not get them in tightly.

We were talking about putting more apples in a box here. I defy any man to take a 96 box that I have here and put any more in it, even a half an apple, unless he cuts them; or you take a 250 box and you can not do it with that, either. We have done a good deal of packing down here, and where necessary, to show the people that it can not possibly be done with any of those numbers. When those apples get here I would like for you to see them. They are just as we packed them. I belong to the Wenatchee Valley Fruit Growers' Association. We stamp every box, and we guarantee it, and if it is not as it is guaranteed we pay the costs; and we have never had to pay costs on one box yet; or if we have, I have never heard of it.

The CHAIRMAN. If there are no further questions, that is all.

TESTIMONY OF MR. W. K. NEWELL.

(The witness was sworn by the chairman.)

Mr. NEWELL. Mr. Chairman and gentlemen, we are opposed to this bill entirely; I wish that understood plainly, that we are opposed to this bill in its entirety. If we must have this matter regulated by law, we must have very many different provisions from what are included in this bill. But I do not wish to confuse the committee with the idea that I am offering any amendments at this time. I wish to talk in opposition to the bill in its entirety.

There are two kinds of products that ultimately should be legislated upon, those that can be adulterated and those upon which fraud can be easily perpetrated. Certainly no one would claim that an apple can be adulterated. Therefore it can not be injurious to public health in any way, and it is a simple matter for the purchaser to guard against fraud in the size of the package. One of the prime objects of this bill is to standardize the amount of fruit that is to be put into the box. I think we have shown here very plainly this morning, and it was admitted by Mr. Gibson in his statement to the committee, that the manner of pack made all the difference in the world as to how much would go into that box, and we showed plainly, I think, in the questions, with regard to the Lafean box, which is larger than ours and smaller than the Colorado box, that if we both adopt it, with our method of pack we will get 10 per cent if not more into that box than Colorado will. Therefore that object of the bill will be defeated. It is an impossibility by law to say just how that box shall be packed in all parts of the United States, and just how much shall go into that box, because, as has been shown here so plainly, that is a matter of honesty in packing as much as the cubic contents of the box. We are already putting on our markets half boxes, and it was proposed this year to use a box holding only one-fourth as much as the full box, and put it out as a separate package. You can not set a standard and say no one shall use anything else in the United States. Oregon has already adopted a law requiring every man who puts out a box of apples to stamp his name and the name of the locality where that fruit is grown upon the outside of that box; and I want that law to go further and to absolutely require that the contents of the box, the number of apples, and the tiers of apples also be placed on the outside. We do that by custom, but it is not the law at present.

Mr. STANLEY. Would you object to putting on the box the cubic contents of the box?

Mr. NEWELL. Yes, sir; if there is a standard established that will discriminate against the box with the cubic contents marked on it. This is the principal point I want to make before the committee, that the way to regulate this over the entire United States is to just pass a federal regulation which will require that every box of fruit, of peaches, pears, strawberries or whatever it may be, shall have stamped on it the name of the grower, the contents of the box and the variety of the fruit, and then if anybody names it falsely, he can be prosecuted for fraud. It does not require an army of inspectors to take up a question of that kind, and in that way everyone will be protected.

The CHAIRMAN. When you say the variety of the fruit, do you mean the name of the apple or the peach, or would you simply have the brand designate the kind of fruit?

Mr. NEWELL. The kind of fruit.

The CHAIRMAN. Whether it is an apple or a peach or a pear?

Mr. NEWELL. The kind of fruit. I think we usually by custom do stamp the variety of apple also on the box, but I doubt whether that would be a wise requirement to make by law, because certain apples appear differently under different conditions. The contents and the number of apples, and all that, should be required by law to be stamped on the box, and then nobody can possibly raise any question, because they will know exactly what is in that box; and if a man stamps a box falsely, he is liable to prosecution for fraud.

The impossibility of grading that fruit by law has been shown very plainly, namely, the impossibility of setting down any law which shall require normal color and variety. What would be normal color for this section of the country would not apply to the further parts of the country, or to other parts of the country. It is simply an impossibility, and I will not touch further upon that.

I have had a great many dealings with commission men, all my life, and I have found them, I must say, just as honest a set of men in the general run as the fruit growers. We have rascals in both classes. I would not impugn the motives of any man in supporting this bill, not in the slightest degree, but this bill places the power in their hands, and leaves us at their mercy. If we packed a car of apples out on the Pacific coast and shipped it to Chicago or to New York, and it came in there on a glutted market and they did not want that fruit for some reason, an unscrupulous dealer would have nothing to do but to open a few boxes of those apples and insert a few off-grade apples and then call in an inspector and have the car turned down, and we would have no recourse whatever. I do not say that any of these men would do a thing of that kind, but we know well enough that there are such men, and we have placed ourselves in a position where we would be liable to anything like that. We are going to demand, under this law, an inspector at every packing house where we put up fruit, and we are going to demand that the fruit be inspected just as every side of meat is inspected by the inspector where it is killed. The apple is a perishable product, and apples may be in perfect condition to-day, and a week from now they may be entirely off quality. It is an absolute impossibility to lay down a law that will govern all of them. Therefore we object to that part of it entirely and absolutely.

Now, what is going to regulate it? Simply the force of commercialism, as Mr. Whistler has said. There have been abnormal conditions in the last three or four years because the crop of the United States has been only one-third or one-fourth, I believe, what it normally is, and as a natural consequence they have run in all of the poor fruit. These New York men will tell you that their cider mills and evaporators have had nothing to do because all the apples have been put into the barrels and put on the market. Let us have a big crop of fruit some day soon, and that will not be done. We are willing to take our chances and to guarantee every box of fruit that we put out, and to stamp on the outside of it what it is but we want the others to be required to do the same thing, and then commercial trade can regulate all the rest of it.

Mr. CHAPMAN. You say you are opposed to the bill, but there are two provisions in the bill, one regulating the packing and the other the grading.

Mr. NEWELL. Yes, sir.

Mr. CHAPMAN. To which of those two are you more opposed?

Mr. NEWELL. To the grades, undoubtedly. I might just add one more point about the packing, as you have referred to that. We have had Canada cited as an example. Canada has adopted the New York barrel as its standard, and they have taken our northwest special box as their standard box, and I have heard no complaint over there as to confusion because of a claim that that box did not hold one-third of a barrel, or that it did.

The CHAIRMAN. The Canada box, I believe, is what you call the Northwest Special?"

Mr. NEWELL. Yes, sir.

The CHAIRMAN. To what extent is that box used in the Northwest?

Mr. NEWELL. I will say perhaps to the extent of 40 or 45 per cent at the present time. Our apples naturally divide pretty near into half in the different grades that will pack more conveniently into this, and the others into the other. This is recognized as the standard, and is used a little more than the other.

The CHAIRMAN. Will the same orchard use both boxes?

Mr. NEWELL. Yes, sir.

The CHAIRMAN. Their selection of one or the other being determined by the size of the apples?

Mr. NEWELL. By the size of the apples, and not the contents, although the special box measures 27 cubic inches more than the standard. But we do not discriminate against it on that account, but simply because of the convenience in the packing.

The CHAIRMAN. About how many more apples, in point of measurement by the peck or half peck would that 27 additional cubic inches mean?

Mr. HAWLEY. I might help you by saying that this box measures 2,226 cubic inches. The apple is a little larger than that [indicating apple]. With the space that there is ordinarily around it in the packing, it would pack in that box, and it would be a little larger than that [indicating]. It would be a 27-inch apple.

Mr. MONROE. Reference has been made to this Northwest Special box. The Northwest Special originated in California, and we know it up there as the California Special; so that they are synonymous. It is in common use in California.

Mr. HAUGEN. I understood you to say that you would not object to a law requiring that box to be labeled, giving the number of apples or the number of cubic inches that the box contained. Is that opinion shared by others who are in opposition to the bill?

Mr. NEWELL. I think that is the universal opinion of our people.

Mr. POINDEXTER. You ought to explain, though, if it is not already understood, that in connection with that you do object to any United States standard.

Mr. NEWELL. Yes; I made that point.

The CHAIRMAN. That is, you do not object to stating either the number of apples or the number of cubic inches in the box?

Mr. NEWELL. Both, if you wish, if there is no standard established that will discriminate against us as showing that it is short. Let every box have the contents stamped on the outside of it, and then it is a fair deal for everyone. But if there is a standard established, then that discriminates against all who do not conform to that standard.

Mr. RUCKER. Then you would not object, either, if such a bill was passed, to provide that any person shipping apples in interstate commerce might put the brand or the variety of the apple on the box, and providing that he should be guilty of a crime if he misbranded the apple?

Mr. NEWELL. No, sir; I do not think that could be included.

Mr. RUCKER. Would you oppose that?

Mr. NEWELL. Yes, sir.

Mr. RUCKER. Suppose he should ship a box of apples like that you have before you and call them by the name of this other kind, whatever this is [indicating]?

Mr. NEWELL. Yes; there should be no penalty attached to anything of that kind, because it is an impossibility, as has been clearly shown here, for anybody to be sure that they have got the right variety. No man should be penalized for being wrong about a thing that it is impossible to ascertain. But if he should willfully defraud anyone, he should be punished for that.

Mr. RUCKER. I wanted to get your idea on that. I understood you differently awhile ago.

The CHAIRMAN. That is the reason I asked you what you meant by the word "variety." That word "variety" has been used in all the preceding testimony to designate different families of apples, and I thought the committee would be misled by it, because I understood you to refer to the general name of the apple.

Mr. NEWELL. That is what I meant, and not the individual variety.

The CHAIRMAN. You believe that the box should be branded simply "apples" or "peaches" or "pears," but that it should not be branded "Winesaps," or have put upon it any other distinctive name?

Mr. NEWELL. The trade will always require that the man should stamp the name on, if he knows it, and he will always do it if he knows it; but he should not be penalized for not stamping it.

Mr. RUCKER. But suppose he stamps a name on there that is notoriously not that of the brand?

Mr. NEWELL. The trade will mighty soon take care of him on that.

Mr. RUCKER. But the trade is victimized to some extent while that is being done.

Mr. NEWELL. I do not believe you can victimize Mr. Wagner or any of these gentlemen. They are not the trade.

Mr. RUCKER. I think these gentlemen can take care of themselves, and if you are not careful they will take care of you folks out West.

Mr. NEWELL. We know that.

Mr. WILSON. That standard box as known in the Northwest, in Oregon, Washington, Idaho, and British Columbia, is 11½ by 11½ by 18 inches.

Mr. MONROE. And in Utah.

Mr. WILSON. Yes. They very seldom come to our meetings.

Mr. MONROE. And British Columbia.

Mr. WILSON. Yes; they are using both.

STATEMENT OF HON. WILLIS C. HAWLEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OREGON.

Mr. HAWLEY. Almost all of what I had to say has already been brought out by the questions. During the last summer I was out through my country, and the question of the apple box was raised at every point that I visited where apples were grown, and the arguments that have been presented here by the representatives were presented at that time very largely. I want to insist upon the impossibility of the grading of apples so closely as to justify this committee in making it a penal offense to misgrade them. I have here a book written by Mr. F. A. Waugh, which was printed in 1909 and copyrighted in 1908 by the Orange Judd Company. Mr. Waugh is or has been—I think he is now—professor of horticulture and landscape gardening in the Massachusetts Agricultural College, and is himself a grower of apples, as he says in that book. He says on page 155, under the head of "Sorting apples," as follows:

The grading of the fruit is extremely important from every point of view. There is hardly anything which affects the price secured more than this. Many fine apples bring outrageously low prices because they are carelessly, ignorantly, or deceitfully graded and packed.

Proper grading requires good judgment and considerable experience. The man who sorts and packs the fruit should be the expert of the gang. The manager can afford to pay him good wages, although, as a matter of fact, such men rarely secure more than \$2 a day.

Further along, speaking on the same subject, he calls attention to the difficulty found in the grading of apples. He says:

The question of whether a certain apple should be put into the first or into the second grade is largely a matter of judgment in the end. It depends also upon the run of the lot. If the apples are all running large, then medium-sized specimens should be put among the seconds. In other words, it is more important that a barrel of apples should be uniform in size than that they should attain any particular size.

On page 158 of this book he says:

In Nova Scotia, and occasionally in Ontario, another barrel is used considerably different from the one just described. It is just a trifle longer, but the most distinctive difference lies in the fact that the staves are straighter. The barrel is made nearly cylindrical. The dimensions of the Nova Scotian barrel are: Diameter of top, 17½ inches; diameter at middle, 19 inches; length of staves, 29 inches.

The Nova Scotian barrel contains 96 quarts, instead of 100 quarts, as in the case of the New York barrel. If the fruit-market act has

been enacted since that was written, that would be an error in the book. This was written in 1908. On page 160 he says:

During recent years there has been a good deal of discussion as to the merits of the apple box. Many growers believe that there is a future for apples packed in this way. While the use of the box has been strenuously objected to in some quarters, especially by the commission men and fruit dealers, it has not always been clear that their advice was disinterested. In fact, it is common knowledge that in some cases they have bought apples in barrels and repacked them in boxes, making quite a profit for themselves thereby.

The writer feels justified in relating here an item of personal experience. A few years ago we had some Gravenstein, McIntosh, and Fameuse apples ready for market in October. We wrote to the commission men with whom we were doing business at that time—a thoroughly reliable firm, by the way—asking them if they would advise us to ship in boxes. Their reply was about as follows: "The fruit is yours. You can do as you please with it. Our advice would be, however, not to use any boxes." Inasmuch as we were anxious to learn how the fruit would handle, and as we had the boxes on hand, we divided the shipment, sending one-half in barrels and one-half in boxes. The fruit was all of the same grade, but that in boxes was wrapped in paper. The whole lot was sent to the commission man whose advice has just been quoted. When the returns came back we found that the barrels had sold for \$2 each, which was the top quotation at the time; but the boxes had also sold for \$2 each. In other words, 1 bushel of apples nicely wrapped and packed in boxes brought just as much as 3 bushels of the same fruit in a barrel.

On page 163 he says:

A great many different boxes have been proposed. These have been of different sizes, different forms, and differently constructed. We seem to be settling down rather rapidly, however, to a bushel box of standard size and construction. This box, which is now the most common, has the following inside dimensions: 10 by 11 by 20 inches. This gives a capacity of 2,200 cubic inches. A standard bushel contains 2,150.42 cubic inches, so that the box furnishes a little over the standard struck bushel (not a heaping bushel).

There are other things in this volume that are very interesting reading, but I will not take the time to read them. The point that I have in mind is that upon the testimony of the Eastern grower, a large grower, and largely interested in this matter, he finds no fault with the boxes that have been adopted in the Northwest, on the Pacific coast, and in British Columbia and in Canada, but recommends them to the growers in his section as the best boxes. He must have had some reason for that, and the reason for that I think has been sufficiently explained before the committee.

There is one thing I wish to emphasize just for a moment, and that is that this is wholly a matter of judgment, and that judgment more or less dependent upon the experience of the man who is called upon to render the judgment, it may be, and largely of men who never grew apples, taken up from the streets of a city without any special qualifications for judging apples. In the case of a dispute between the packer and the jobber, where the packer is accused of having violated one of these principles in section 3, under the second paragraph, or several of them, the jury will be called upon to decide whether this apple or that apple is of normal shape of this variety [indicating apples.] You can see that they differ. They will be called upon to say whether this apple, or this apple, or that apple is of the normal color [indicating apples]. It is here made a penal offense for a man, using his best judgment, in absolute good faith, meaning to put up that apple or that apple, not to do so; and if he does put up an apple which, in the judgment of somebody else who has

the final authority to decide in the matter, differs from the normal in shape or color, although he has acted in absolutely good faith, he is guilty.

In the meat-inspection law there is provision made for the men who are to inspect the carcasses, to reject those that are wholly bad, or partly bad, and to stamp those that are good. We make an annual provision in the bill for carrying out the pure food and drug act. Am I not right?

The CHAIRMAN. Certainly; in the agricultural appropriation bill.

Mr. HAWLEY. In the agricultural appropriation bill. So parties in interest may all have their interests conserved. But in the pure food and drug act, as was stated by Mr. Newell, it is a question of the deleterious use of preservatives, which can be determined by chemical analysis. Under the meat-inspection act it is a question as to the condition of the food, whether it is good for human consumption, whether it is in a stage of such advanced decomposition as to be unfit for human food. Now, those are questions that can be absolutely determined. When the question has been raised as to the use of benzoate of soda, and the sulphuring of fruits in California, in order to protect the people who were to be penalized and punished, there has been added a board of five of the most eminent chemists in the United States to pass upon the question as to the deleterious effects of benzoate of soda, or the use of sulphur in the bleaching of fruits.

Here is a bill which proposes to make it a crime, punishable in the first instance by a fine of \$500 and imprisonment for a year, or both, and after that double that amount of punishment for each succeeding offense, for the exercise of absolutely honest judgment, and there is no safeguard provided in the bill that when he has exercised his best judgment the grower shall be protected. They have grain standardization. If I ship my wheat, and I think it is No. 1, and it arrives there and turns out to be No. 2, I am not sent to prison or fined for that defect in judgment; I simply lose the difference in price between No. 1 and No. 2 wheat. So you can go through all the list of commodities. As to corn, if a man makes a mistake as to the grade of his corn, if he has been honest in that, all he loses is the difference in price when it is inspected, and he gets what it is really worth.

That is all we are contending for—that a man should get what his goods are really worth. But here, under this bill, with no Government inspection to show the grower what is a proper standard, and with that variance which has been admitted here from locality to locality and from season to season in the same locality, if the apple grower makes the same sort of mistake in judgment that may be made by the corn grower or the wheat grower or the grower of any other product, he becomes a criminal. It seems to me that such legislation as that is grossly unfair, and is without precedent in this country. If the bill is to become a law, it seems to me it ought to recognize and reward industry, scientific cultivation and care, and general development in the growing.

The people in the East may not have been as much specialists in this subject as the people in some other locality. There may have been some in the East who have done well and some who have not done well. But with the careful cultivation of the orchard and the

growth of a cover crop, plowing it under as green manure, and with the use of a soft dust mulch, and every other method of improving the variety of the fruit and the size of the apple and its color, we will greatly improve, especially in the East.

Now, I will not dwell on that point again, but it was shown here yesterday and to-day that there is not an apple on the table here that is not considerably above the very largest size that the law would prescribe for a large size. Everything from a 2½-inch apple and from the size of this stack up there, fully 3 inches in diameter or better [indicating apples], to those [indicating], are "U. S. Size A." The man who puts his time and his money and his industry and his intelligence into the development of an apple like that [indicating large apple] is absolutely, so far as the law is concerned, to be deprived of all the rewards that would come therefrom, unless outside of the law he goes and makes a special brand for himself; and if somebody would send in for "U. S. Size A" apples of a certain variety, there could be delivered on that order this apple as well as that [indicating apples], and that grower is entirely outside of the law and has no recognition in the law.

We give patents to inventors and copyrights to writers, and in every way we recognize the use of intelligence in improvements in this country. Now, I would like to ask the gentlemen, the proponents of this measure, a question, upon the line I have just spoken of. Suppose the bill is to be reported favorably by the committee, and suppose the committee should make standards, as proposed, a 3½-inch apple to be "U. S. Size A," a 3¼-inch apple to be "U. S. Size B"—recognizing your quarter-inch grades—a 3-inch apple to be "U. S. Size C," a 2¾-inch apple to be "U. S. Size D," a 2½-inch apple to be "U. S. Size E," a 2¼-inch apple to be "U. S. Size F," and a 2-inch apple to be "U. S. Size G," recognizing the facts as they exist in the apple business, would you favor the passage of the law? I will not insist on an immediate answer; I will leave the answer with the gentlemen.

I had a number of other things to say, but I will close with one thing more. Here are some apples, 64 to the box, and those would have to go in with this 2½-inch apple as "U. S. Size A." It seems to me that to require the size of apples and the number contained in the box to be stated is a far better safeguard to the consumer as to what he actually is getting when he buys apples than would be the statement of the cubic contents of any package; because, as has been demonstrated, the quantity in the package can be varied by the method of packing.

I thank the committee and the gentlemen.

TESTIMONY OF MR. C. B. SHAFER.

(The witness was sworn by the chairman.)

Mr. SHAFER. Mr. Chairman and gentlemen of the committee, there has been a statement made here that the Apple Shippers' Association was the originator of this bill, and that the shippers were practically the only ones who desired the bill. I wish to state that when this bill was first introduced, in a rough cast, it was simply introduced to get it before Congress in an official form, to have something to work

on. Two weeks after that bill was introduced the executive committee of the Western New York Horticultural Society called a special meeting and invited the executive committee of the New York Fruit Growers' Association to meet them, and at that meeting I was present. There were nineteen people in that gathering, and every one of the nineteen was in favor of some kind of a federal law. The result was that there was a committee of three appointed to take up that bill. I was one of that committee. A member of each of the other societies was put on that committee. That matter was discussed from time to time, and finally there was a conference called by a joint call from the three associations to meet in Washington. That conference met on the 27th of January.

We invited all of the associations of dealers and jobbers from all over the United States to attend that conference. There was a committee appointed at that conference of nine people. Six of the nine represented growers' associations, and three represented shippers' and buyers' and packers' associations, and the same committee have had that matter in charge up to the present time, and this is the final draft of the bill. I thank you for your attention.

The CHAIRMAN. Just one moment. You are familiar with the discussions that took place at these meetings?

Mr. SHAFER. I am.

The CHAIRMAN. What was the reason given in favor of this bill which seemed to have most weight with the growers, do you remember?

Mr. SHAFER. Yes; I do. The fact was that the grower wanted a protection, and when he produced a No. 1 barrel of apples, that barrel of apples would go from the producer to the consumer in its original form, in its original pack.

The CHAIRMAN. Well, does the great majority, the great bulk, of the apple crop of the country go from the producer to the consumer in the original package?

Mr. SHAFER. No, sir.

The CHAIRMAN. Then how did that argument appeal to you?

Mr. SHAFER. This argument appealed to us in this way. If we have a standard packing law under which those apples are packed, they must be packed that way, and there is then no object in the dealer repacking those apples. They will then go in the original pack.

The CHAIRMAN. Was the question brought up in any of these meetings, and the argument used that by establishing a grade which would recognize the 2½-inch apple as of the first class, the New York growers or the growers of smaller apples would be placed in better position to compete with large apples that came from other sections of the country which would be obliged to take the same grades?

Mr. SHAFER. I do not think there was, particularly. Of course the conditions of some sections are such that they do not grow a large apple. While the apples are perfect, the conditions of the locality are such that they do not produce quite so large an apple as other localities, though they would be perfect apples and in the same class.

The CHAIRMAN. Did they recognize and argue that in order to have their interests protected the minimum size of the first grade apples should be fixed at not more than 2½ inches?

Mr. SHAFER. Yes, sir.

The CHAIRMAN. They recognized that it would help them to compete with other apples?

Mr. SHAFER. Yes, sir.

The CHAIRMAN. Then does it not follow, if that is true, that the growers of large apples who are obliged to brand their apples the same as the growers of small apples are put to a disadvantage?

Mr. SHAFER. I do not think so; no, sir.

The CHAIRMAN. How does it happen that the rule will not work both ways?

Mr. SHAFER. The fact is that that box apple trade is distinct from the barrel apple trade. Now, if a man was to pack boxes in the East, he would adopt the same practice they have in the West; he would number his apples and tier them, which would designate the size of the apple. The apples in the East, packed in barrels, they would not size. The apple territory of the Northwest has a distinct trade of its own; the jobbers recognize it so, and so do the dealers.

Mr. STANLEY. Would you object to having this law so amended that the contents of the box should be stated, and where the number of apples and other things of that kind were not stated, then that the package should be designated by these classifications; but that these classifications should only apply to containers that did not number the fruit contained? In other words, let that statement apply to barrels and boxes not numbering the fruit?

Mr. SHAFER. You mean to have that apply to the apples packed in boxes in the northwest territory?

Mr. STANLEY. Would you object to having all containers, boxes and baskets, as well as barrels, classified unless in case of a box or basket the number of apples is placed on the box, and in that event these classifications should not apply?

Mr. SHAFER. Yes, I would, personally.

Mr. WHISTLER. On that committee of nine that you have mentioned was there a representative grower of box apples?

Mr. SHAFER. Yes, there were two representatives of box apples.

Mr. WHISTLER. Of box apples?

Mr. SHAFER. Yes; and I will further state that one of those gentlemen, when he had gone through the market in the East, personally modified his views, and he further stated, and it is a part of the minutes of that conference, that he would go back to the Northwest and try to induce his people to change their minds and change the position that they had taken in regard to this legislation.

Mr. WILSON. Who is that gentleman?

Mr. SHAFER. Mr. Tibbetts.

Mr. HAWLEY. There are some sections of the country which do not raise a first grade of wheat, and yet in the markets the wheat business is not based on their grades, but on higher grades, recognizing the conditions as they exist in the productions of nature. If we followed your line of argument, that in grading apples we should not recognize those conditions, then grading wheat and grading cotton should be based upon a certain minimum, and anything above that should go in with that minimum as a grade. But that is not practiced in the wheat market or in the cotton market. Why should it be forced upon the apple market?

Mr. SHAFER. Well, the grading of cotton and the grading of wheat I am not familiar with.

Mr. HAWLEY. It recognizes natural differences according to the length of the staple of the cotton and according to the size of the berry in wheat, and they have other conditions also, much the same as we have here. If it is right in one instance, and they have been accepted both by the trade and the consumers where they have been indicated, and so accepted as the United States standards when they made standards of cotton, why should not the apple trade be justly dealt with in this case?

Mr. SHAFER. I do not see why that should apply in this case.

The CHAIRMAN. The point Mr. Hawley had in mind, to which he was drawing attention, I think will be made clear to you with this statement. It has been put in testimony before the committee that, other things being equal, the larger an apple is the better price it brings. That being true, the question is whether the grower of a large apple is not put at a disadvantage, is not denied the advantage which the size of his fruit would give him and ought to give him, by being compelled to classify it alongside of an apple which is very much smaller. That is the question; that is the point.

Mr. HAWLEY. The point there was, would you be willing to have additional grades, up to 3½ inches?

Mr. SHAFER. I do not think this bill would have any effect whatever on the northwest products, of those sizes.

The CHAIRMAN. Suppose, as a New York grower, you should pick out the choice, big apples of your orchard and put them in barrels, and suppose that they were apples which averaged 3 inches; they would be worth more than apples of the same variety which averaged only 2 inches?

Mr. SHAFER. Yes, sir.

The CHAIRMAN. And yet, under this bill if it should become a law, you would have to brand them both the same way. Now, how would the purchaser of those two barrels of apples know which was the barrel of big and which of little apples?

Mr. WAGNER. May I answer that question?

The CHAIRMAN. Yes.

Mr. WAGNER. He would know through the variety of the apple.

Mr. NEWELL. No.

The CHAIRMAN. But suppose he did not know the variety of the apple? I would like for the witness to answer that question.

Mr. HAWLEY. He would know from the size of the apples in the same variety.

The CHAIRMAN. I think the witness understood the question.

Mr. SHAFER. I do understand the question, and, answering it from my own personal standpoint, I say, put a special brand on that kind of apples, in addition to the United States standard mark which designates the size, which would be a different size from the size A.

Mr. HAWLEY. Why not recognize it in the law, then?

Mr. SHAFER. Well, it might possibly be drawn in that way; but the object of this committee was to simplify this bill as much as possible.

The CHAIRMAN. Are there any further questions?

Mr. NEWELL. I just wish to establish the point that the witness voluntarily testified that the Northwest was a separate proposition.

The CHAIRMAN. The committee will take notice of that. Mr. Wagner, do you wish to address the committee in closing?

ADDITIONAL TESTIMONY OF MR. WILLIAM L. WAGNER.

(The witness had been heretofore sworn.)

The CHAIRMAN. Before you proceed, in order that you may not be interrupted and in order that you may have this thought in your mind, let me ask you a question. The bulk of the apple crop goes to the consumer in broken packages?

Mr. WAGNER. Yes, sir.

The CHAIRMAN. The boxes and the barrels are bought in the market by jobbers or retail men?

Mr. WAGNER. Yes, sir; the boxes to some extent by the consumer, and the barrels also; but the majority go to the consumer in the broken package.

The CHAIRMAN. Does the jobber or the retail man always know just how many apples he is getting in a box or in a barrel?

Mr. WAGNER. He does not, sir.

The CHAIRMAN. Is not that a part of his contract? Does he not familiarize himself enough with the different packs in the different sections of the country to know whether he is getting a short or a long box, or whether he is getting a barrel that may hold eight or twelve pecks?

Mr. WAGNER. To a greater or less extent that must be true; but with the variety of sizes of boxes used, that is not always certain. Not only that, but he is not always upon the market to make his purchases. For example, you living in Kansas would wire to me in Chicago for 25 boxes of Winesap apples of Class A, or whatever particular brand you might want, say the Gold Medal brand. I might have that brand packed in Washington or in Colorado or in Oregon or in Utah or in Kansas, where you would not be certain of the size of your box absolutely from any one of the sections, no two absolutely comparing. To-day we have demonstrated here that there is only a quarter of an inch difference, but that makes twenty-odd cubic inches in the box. Unless you were personally on the ground you would not have the certainty as to what capacity of package you were getting. You would have a greater certainty in the barrel.

The CHAIRMAN. Then it is the retailer, really, who is concerned about this matter, so far as the size of the box is concerned?

Mr. WAGNER. The retailer, in a large measure, and indirectly the consumer; but the retailer in the largest measure, possibly, because of the fact that with a standard—and that is all we are trying to create, a standard—and a standard that is recognized, he enlarges the scale of his operations and increases the output of his apples, as must happen when unbroken packages can be lawfully sold.

The CHAIRMAN. What would you say of the proposition made here this morning to limit the requirements of this bill to the requirement that the cubic contents of a package of any kind of fruit, apples or peaches or pears, should be branded upon it, with the name of the grower and the name of the fruit?

Mr. WAGNER. The bill stipulates absolutely that, with one exception, Mr. Chairman; the bill does not in its provisions, I believe, determine that the cubic contents of a standard box shall be branded upon it. Otherwise the bill carries the stipulation as suggested in the question.

The CHAIRMAN. The bill has also provisions for grading which were not included in the other suggestion.

Mr. WAGNER. Yes.

The CHAIRMAN. Do you think the grade provisions carried in the bill, for the branding with the marks "U. S. size A," and so on, a vital part of this bill?

Mr. WAGNER. Absolutely, sir; absolutely. Not that they would not make two good distinct laws. I do not mean that the one would fall without the other, but that both are good and are desired.

The CHAIRMAN. What would be your answer to the suggestion that has been made that the enactment of this bill into law would make it easier for the unscrupulous jobber or commission man to defraud the grower of the apple?

Mr. WAGNER. Legislation will not make a man honest. It may tend toward it. But that does not, in my opinion, offer any greater opportunity than is offered at the present time; none whatever.

Mr. HAUGEN. As a general thing the apple is sold on the tree, is it not?

Mr. WAGNER. Yes, sir. I was just going to ask if I might be permitted to say that these gentlemen have stated an absolute fact when they said they sell their goods f. o. b., and the money is in their pockets when the goods leave the station.

Mr. HAWLEY. You say legislation will not make anyone honest. That is true; but under the present conditions the seller of apples is not under a penal provision in the statute for the act of somebody else.

Mr. WAGNER. Nor would he be in this, for the act of somebody else. No man is liable under any provision of law, if I may be permitted to say so, for the act of another, and the contractual relations between buyer and seller are absolutely unchanged through the enactment of this bill into law. To-day the contract is just the same. They sell under certain provisions of grade, and they will do the same thing to-morrow if this bill is enacted.

Mr. HAWLEY. But can you fine a man and send him to the penitentiary now?

Mr. WAGNER. For fraud, absolutely, sir.

Mr. HAWLEY. If the grades which he sells, and which he thinks are right, are not the grades you think they are?

Mr. WAGNER. If I can prove there is fraud in that connection, I can do so.

Mr. HAWLEY. That is not the question.

Mr. WAGNER. Not for thinking, under this bill, nor under the testimony of any government expert.

Mr. HAWLEY. They will take the government expert's testimony in that direction.

Mr. WAGNER. He would have to prove it by 12 good men. It has been too much assumed here that the government expert would have the whole say so.

Mr. McLAUGHLIN. In the enforcement of the pure-food law the intent does not enter into it. It is not an element in the case. You make the intent very important in this law.

Mr. WAGNER. I am willing to concede that if this committee in its wisdom can find another method for the enforcement of the law in the administration of it, with moderate penalty, our association will indorse it absolutely.

Mr. STANLEY. Would you have any objection to making an apple, of that form and size, the standard [holding up big apple]?

Mr. WAGNER. Yes, sir.

Mr. STANLEY. To take that as the standard of perfection, which is as near as has been reached in apple growing?

Mr. WAGNER. Yes.

Mr. STANLEY. And have all others graded as approaching to that?

Mr. WAGNER. Yes; I would, for this reason only, that the standard must of necessity be not a sectional standard, but such a standard as can be met in any part of these United States. Such a standard as that would be impossible to meet in certain sections. It could not be done. The standard as arrived at is a compromise between the fruits grown in all sections. Not only that, but certain varieties of apples, and some of them the finest, are grown small. It has been stated that the larger the apple, the larger the price. The highest-priced apple sold by my firm this year is a "Lady" apple, which measures $1\frac{1}{2}$ inches in diameter. It was absolutely perfect.

Mr. STANLEY. And yet you could not grade them to standard?

Mr. WAGNER. Under the law, I would not, and I would not have to. This fruit is all seen when it is bought, and that which is good brings what it is relatively worth. All we want is a standard from which we can work up—a minimum as a standard. But that standard should be based upon such terms that every State and every locality in this country can meet its conditions. Merit tells anywhere.

Mr. WHISTLER. May I ask you a question?

Mr. WAGNER. Yes, sir.

Mr. WHISTLER. I should like to ask you just what is the principle that makes it necessary that that apple be branded "U. S. size A" in conjunction with this one [holding up a small and a large apple]? Could not the countries growing that size [indicating smaller apple] meet the requirements of a standard size E, if it was necessary? This law, as I understand, does not attempt to meet the conditions wherein each variety may arrive at the highest possible standard. Could not they give a standard for this [indicating small apple] and still, in equity, give a standard for that [indicating large apple]?

Mr. WAGNER. If the apples were of the same standard, that might be equitable; but where there are so many varieties of apples that grade so many sizes each it would involve too many standards and too many figures, and it would be absolutely impracticable.

The CHAIRMAN. The trouble, as you suggested the other day, would be that under such an arrangement the great bulk of the apple crop of the country would be branded as inferior.

Mr. WAGNER. In large measure, yes, sir. That is the reason exactly, because it would take in those sections where they can not produce the size, and it would absolutely put them upon a different basis of grade.

The CHAIRMAN. Will you proceed now with your statement?

Mr. WAGNER. I have but about two things more to say, gentlemen. I simply want to call your attention to the fact that we, as the proponents of this bill, have presented to you gentlemen who have spoken to you authoritatively for approximately 150,000 of the growers of fruits of this country, not less than 25,000 or 30,000 retail dealers, and not less than a couple of thousand jobbers. The bill has been a

matter of careful, conscientious thought and consideration between these different interests, and has been approved in almost every section that has been proposed.

Just a word as to the suggestion as to color. It would be my own suggestion, gentlemen, and the others would agree with me, ~~that in~~ line 9 on page 2, section 3, where it reads "apples of one variety, which are well-grown specimens, hand-picked, of good color for the variety," there should be inserted the words "for the locality in which grown." There is no question that certain localities do grow deeper color than others. There is no question but what the good Lord has given an air and sunshine to our Northwestern States that does in some varieties of apples produce an effect that is not produced elsewhere, just as he has given to Colorado a sunshine and air, or some climatic conditions, which produce effects that the northwest man can not approach in some varieties of apples. Just so, in the Northwest States, they can not approach in condition and quality some other apples. I believe that that principle should be inserted. With that thought, and with the most earnest thanks of the proponents of this bill for the more than generous allowance of time which you have given us, I wish to close. I thank you.

The CHAIRMAN. The committee is under great obligations to all the gentlemen who have appeared before us, for the information that they have given the committee, and we will bring the hearings to a close.

(At 1.15 o'clock p. m. the committee adjourned.)

IMPORTATION OF WILD AND DOMESTIC ANIMALS.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., Thursday, March 24, 1910.

The committee met at 10.30 o'clock a. m., Hon. Charles F. Scott in the chair.

The committee thereupon proceeded to the consideration of the bill (H. R. 23261) to import wild and domestic animals into the United States.

[H. R. 23261, Sixty-first Congress, Second Session.]

A BILL To import wild and domestic animals into the United States.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of Agriculture be, and he is hereby, directed to investigate and import into the United States wild and domestic animals whose habitat is similar to government reservations and lands at present unoccupied and unused: *Provided*, That, in his judgment, said animals will thrive and propagate and prove useful either as food or as beasts of burden; and that two hundred and fifty thousand dollars, or as much thereof as may be necessary, is hereby appropriated, out of any moneys in the Treasury not otherwise appropriated, for this purpose.

The CHAIRMAN. The committee has met this morning, pursuant to the request of Representative Broussard, of Louisiana, to consider H. R. 23261 (of which he is the author), a bill to import wild and domestic animals into the United States. The committee will be very glad to hear any statement Mr. Broussard has to make, and will ask him to introduce any other gentlemen whom he would like to have address the committee.

Mr. BROUSSARD. Mr. Chairman and gentlemen of the committee, I shall not make any statement with regard to the bill this morning, because I can come here at any time and appear before the committee. I was anxious to get a meeting as soon as possible because of the fact that three gentlemen who probably have devoted more time than almost anyone else to this matter, both from the scientific and from the practical standpoint of investigating the matter, happen to be in Washington to-day. I refer to Mr. Irwin, of the Bureau of Plant Industry of the Agricultural Department; Captain Duquesne, an Africander who has taken part in various campaigns and is a hunter of great note; and Major Burnham, who has kindly come from New York this morning to appear before the committee, and who has given a great deal of thought and study to this subject. All three of those gentlemen are here, and I want them to be heard, so as to properly present to the committee the importance of this subject.

With the permission of the committee, I will ask Doctor Irwin to address the committee.

STATEMENT OF MR. W. N. IRWIN, OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

MR. IRWIN. Mr. Chairman and gentlemen of the committee, in studying the resources of our country for a good many years I was led to the conclusion that we ought to have more creatures than we are raising here. It seems rather strange that for four hundred years we have continued to use three animals for our meat supply—cattle, sheep, and swine. Why that has been I am unable to say; but we continued that down to 1900, when one more—the goat—was added to our list. These four were imported from Europe, only one native American, the turkey, being under domestication. We have resources through the South and through the West and on the high mountain ranges where we can add a great many more species that will be of immense benefit in the way of strengthening our meat supply.

We all realize that the meat question is one of the important questions to-day before our country. The prices are going beyond the reach of ordinary people. We can help in that direction if we will get at the matter and bring in the useful animals that we can feed without taking away from the animals we already have.

My idea is that in the South we have the greatest undeveloped resources in the water courses there and in the lakes and ponds there, where I think it is easily possible to add 1,000,000 tons of meat a year to our supply if we will get the right animals. The feed is there now, going to waste. It is alarming the people in that country. It is giving them great inconvenience through stopping up their waterways, their navigable streams, and I believe there is a gold mine there if we will adopt the right measures to utilize the value of it. That is why I have prepared this little paper on this subject, suggesting that we get the hippopotamus here—an animal whose flesh is excellent in quality and that is easily kept in suitable locations; an animal that would turn the plague that they now have in the South into good, wholesome flesh for our people.

Then there are many other animals. There is the Cape buffalo, and there are a number of the smaller antelopes that could be added there, that will work right with the others, and can be fenced right with them; and we could soon build up a valuable addition to our animal list in this country. There is not any reason why we can not find a place in the United States for every one of the more than 100 species of animals that are in existence to-day and not domesticated. Many of them would prove very valuable additions to our list.

I have suggested quite a few of the smaller antelopes as an adjunct to the farmers' poultry yard—little bits of fellows that weigh from 5 or 6 to 20 or 30 pounds. The farmer could kill one of those and he could use up the meat before it would spoil. He can not do that with any of our domestic animals during the warm weather. He could do that with these antelopes if he had a herd of them.

THE CHAIRMAN. Can those little antelopes be domesticated?

MR. IRWIN. They become very tame; they are easily tamed. There is no trouble whatever, I am told, in taming any of them, if you catch the fawns. As in the case of our native deer and elk, if you catch the fawns and pat them a few minutes, they will follow you anywhere. They become great pets. In fact, like most domestic animals, they

get too tame. The bucks become dangerous, as do our bulls and some of our other animals.

I do not think there is any question about the certainty of our domesticating any of these great animals. Probably the rhinoceros would be the most difficult of all. But we have plenty of open, wild desert country where he would live for months without a drop of water; and that is something that nothing we have here can do. We ought to have the camel down on our southwest desert country. It is a good meat animal; it is a good draft animal; it is a good saddle animal; its flesh is good, and it is a good dairy animal. There is not any reason why we should not have them.

When Mr. Davis introduced the herd of camels here in 1853 or 1854, the only mistake about it was that he did not have enough of them to make the test a certain one. The boys that were assigned to use camels were in the minority, and the boys on the horses made sport of them to such an extent that the whole thing was thrown overboard. They would not use them. They practically rebelled against it. But that would have been a great animal for this country. Those animals traveled all over the southwest deserts and lived, while the horses that they started out with perished.

Those are lessons that I think we ought to look at rather seriously, because our country is growing so fast that we ought to adopt every possible means of strengthening our meat supply. There is not any reason why we can not raise meat for every person, if we will get at it and get the right animals here. We have animals in South America, like the llama, that would live all the way up to the tops of our mountains. The yak from Thibet would live on the highest Rockies and succeed well. In his native country he is domesticated. They use him for a saddle animal, for draft purposes, for milk, and for his flesh; and his hair is of no inconsiderable value.

There is a variety or breed of pigs over in northern Manchuria that would be of great value to all the northern section of our country. They are valuable for their meat and for other purposes as well. They make a good yield of meat on rather coarse kinds of feed—millet, distillery refuse, etc., and such feed as that—and attain a weight of 400 pounds. The yield of the bristles from those hogs is of very great commercial value over in that country. A few years ago, according to the last figures I have, there were 75 tons of bristles sold in Newchwang at from 12 to 18 cents a pound, I believe; and the statement from the consular agent for Great Britain was that that was a small proportion of what had been sold out to Tientsin, I believe it is called—another port where those bristles are shipped.

If these great porkers will make so much pork on such unpromising feed in that far northern country, it seems to me that all through our Northern States they would be a much more valuable animal than our European pigs. We could get them here at slight cost and could have them at our experiment stations in Minnesota, in the Dakotas, in Montana, New York, and the New England States; and they ought to prove of very great value to this country.

Mr. BROUSSARD. Doctor, do you want to pass these papers around?

Mr. IRWIN. Yes; I have a little paper here that I would be glad for each member of the committee to have.

The CHAIRMAN. If you have finished your statement, Doctor, I should like to ask you one or two questions.

Mr. IRWIN. Certainly.

The CHAIRMAN. First in regard to the hippopotami: Are they easily domesticated?

Mr. IRWIN. The people who have handled them tell me they are very easily tamed, and become very much attached to man.

The CHAIRMAN. In case they were introduced into the Southern States, would there be no danger that they would turn wild and that they would become a pest?

Mr. IRWIN. I think perhaps if they were loose there they would. They would annoy the people who have crops, because they will go as far as 15 miles in one night, and destroy gardens and things of that kind. It is not my idea at all to turn them loose. That animal is easily controlled. It would be my idea to domesticate them. There would be no trouble in fencing them and controlling them.

The CHAIRMAN. Are they prolific breeders?

Mr. IRWIN. They breed once a year, according to the best records that I can get hold of. The only record that we have in this country is in regard to the cow in the Zoological Garden in New York, which produced eight calves in nine years, I believe, and raised seven of the eight.

The CHAIRMAN. What does the flesh most nearly resemble?

Mr. IRWIN. It is a kind of a combination of pork and beef in taste.

The CHAIRMAN. Do white men like it?

Mr. IRWIN. Many of them do. Many writers say that it is not edible at all, for this reason: When those big animals are killed in the water, their specific gravity is so great that they immediately sink to the bottom, and lie there until putrefaction sets in and the gases cause them to rise. Naturally, our people here would not like that kind of meat. We would not like it in the case of beef, either. But where they are killed on land and dressed at once, those who have tasted them say that the flesh is delicious; it is excellent. I have letters right here explaining the matter that I would be glad to have read, if you would like to have that done—letters from gentlemen who have been over to Portuguese East Africa, directing the agricultural problems there, and so on.

Mr. CHAPMAN. The hippopotami grow to a great size, do they not? They become very large?

Mr. IRWIN. The largest estimate I have had was four and a half tons. They gain about 100 pounds per month, according to the estimate of the people in New York. When about 3 years old they weigh about 3,600 pounds.

Mr. HOWELL. What do they subsist upon?

Mr. IRWIN. I am told that they will eat anything that cattle will eat, and many things that the cattle can not get to—the water plants. They will eat all kinds of water plants that cattle can not get at. That is what first attracted my attention to these animals. I thought they would be very useful in the Florida and Louisiana streams, to clear them out.

The CHAIRMAN. How would you expect to control them in those streams?

Mr. IRWIN. I would fence off a margin along the stream, and pull the hyacinth in for them to eat.

The CHAIRMAN. What would you do downstream or upstream? You would not cross-fence the stream?

Mr. IRWIN. No, sir; not at all. But you could drive piling around five or six acres along the water front of a man's farm, and place a gate there, and take that material in for them to eat, so that any man fronting a stream would have a valuable farm there.

The CHAIRMAN. Would it not be a good deal of a chore to hunt provision enough for them if they were kept in that way?

Mr. IRWIN. I think not. In Louisiana, where the soil is very fertile, it would not be any trouble to raise plenty of forage outside of the water for them; but then they could raise so much more, from thirty to fifty tons to the acre, in the water. The water hyacinth yields from thirty to fifty tons to the acre, I am told by people who have studied it closely; and that is a good deal of feed in one acre.

The CHAIRMAN. We are very much obliged to you.

Mr. HOWELL. Do you know of any animal that you think could live in the Great Salt Lake?

Mr. IRWIN. I do not know of any animal that will live in salt water, sir.

Mr. HOWELL. Any water animal, or any fish?

Mr. IRWIN. I suppose the manatee might live there if it is not too cold for it; but I expect it would be rather cold there.

I have one picture here that I should like to have you gentlemen see. [Exhibits photograph to committee.]

The CHAIRMAN. I think it would be a good idea if the reporter would include this paper at the close of Mr. Irwin's remarks.

Mr. BROUSSARD. I was about to ask the chairman to do that.

(The paper above referred to is as follows:)

ANIMALS THAT SHOULD BE INTRODUCED AND BRED FOR ECONOMIC AND PROFITABLE MEAT PRODUCTION.

[From the proceedings of the meeting of the American Breeders' Association, held at Columbia, Mo., January 6, 7, and 8, 1909.]

One of the great problems with which our country is confronted is that of providing an adequate meat supply for our rapidly increasing population. In the last decade, as shown by the United States Census Report of 1900, our population increased 20.7 per cent. One, only, of our meat-producing creatures enumerated in 1890, showed an increase—swine increased 8.6 per cent. All of the others decreased in numbers, the falling off being for cattle, 8.9 per cent; sheep, 2.2 per cent; chickens, 9.7 per cent; ducks, 36.2 per cent; geese, 32.7 per cent; turkeys, 38.6 per cent, and other fowls, 36.1 per cent.

For many decades our meat supply kept pace with the increase in population. It was easy and profitable work to move a little farther out on our great prairies and produce more meat. About 1890, however, we had reached the limit of easy production. The great prairies are being cut up into farms, and as our population increases the size of the farms will be reduced in proportion. In 1850 the farms in the United States averaged 202.6 acres; in 1900, 146.6 acres. If our population reaches 200,000,000 by 1950, as predicted by some of our wisest heads, the farms will probably average less than 95 acres. These conditions will mean a less number of animals and an increase in the cost of meats.

We are consuming now an average of 8 ounces of meat per day for each inhabitant, or 15,000,000,000 pounds per annum. At the same rate of consumption as now, in 1950 it will require 100,000,000 pounds per day, or 40,000,000,000 pounds (20,000,000 tons) per annum. With a greater variety of meats to choose from this daily average would be considerably increased. Can we produce this amount of meat? Certainly not along the lines we have been following. We must secure animals adapted to areas that are now nonproducing.

To the cattle, sheep, and swine that our forefathers introduced, and which from custom and convenience we have continued to use, we have added two other species—

the goat, enumerated in our census report for the first time in 1900, and the reindeer, whose introduction began with 16 head in 1891. In 1892, 171 were brought in, and varying numbers yearly until 1902, when the Russian Government withdrew its permit to ship reindeer out of that country. In all, 1,280 reindeer were imported, and these had increased to 19,322 by June 30, 1908. These two species, using different provender (of which there is an abundant supply) from our three older kinds of domestic animals, promise to be valuable aids in the solving of our meat problem.

In selecting other species for introduction, it is very important that we consider the food supply that they will require. We have several large areas well adapted to certain kinds of animal life, and not now producing, for the reason that the animals are not there. The area of greatest promise is in our Gulf States, and consists of over 10,000 square miles (6,400,000 acres) of water and marsh surface, with a sufficient quantity of marsh grass, water hyacinth, and other aquatic plants now growing, to support thousands of animals adapted to these conditions. If properly seeded to water hyacinth and other aquatic plants, this vast region would be capable of producing 1,000,000 tons of meat per annum, worth \$100,000,000. This area should be stocked with hippopotamus (*Hippopotamus amphibius*), the flesh of which is highly esteemed, and when salted and cured, is known in the Cape of Good Hope as "Zee-koe speck" (Lake-cow bacon). The fatty mass lying between the skin and the flesh or muscles is considered one of the purest of animal fats, and is in great demand among the Cape Colonists. These massive animals were to the English settlers in Cape Colony what our buffalo was to the pioneers in the settlement of our great prairies, and like the buffalo were heedlessly almost exterminated.

The African buffalo (*Bos caffer*), situtunga (*Tragelaphus spekii*), bush-buck (*Tragelaphus sylvaticus*), reed-buck (*Cervus capra arundineum*), and nsunu (*Kobus kob*), would also be valuable additions for this region.

We have abundant room in our Southern States and Territories for many of the great African animals now nearly extinct. Of these, the giraffe (*Giraffa camelopardalis*) and the white rhinoceros (*Rhinoceros simus*) are two of the most valuable. The flesh of the giraffe is of the highest quality, and evidently quite free from uric acid, since it will keep without putrefaction much longer than any known flesh. This valuable animal should without delay be placed under domestication both in this and its native country, its food requirements not conflicting with those of any other species. Its gentle disposition would make it an exceedingly desirable domestic animal. The white rhinoceros, differing in temperament from the black species, as do our short-horns and Herefords from the Spanish type of cattle, and with the capacity to produce an enormous quantity of excellent meat from the coarsest and most unpromising kinds of provender used by any of the herbivore, should become a most valuable acquisition for our desert country. Where now the Gila monster and the diamond rattler hold sway we might in a few decades have great herds of these ponderous animals weighing 3 to 4 tons each.

A profitable industry could be easily and economically built up by introducing some of the smaller antelopes, to be used as an adjunct to the farmer's poultry yard. Our domestic animals are too large for the farmer's family to use up without loss during the warmer months, and it is not always convenient to go to the city butcher shop for fresh meats. As it is now, the family have to be content with salted meats or poultry. With a small herd of these little antelopes the farmer's family could enjoy better meats than their city cousins, and any surplus would command fancy prices. The small antelope of northern Manchuria, weighing from 25 to 40 pounds, being extremely hardy, easily tamed, and producing delicious venison, would be well adapted to all our northern sections of country. The red duyker (*Cephalophus natalensis*), weighing from 25 to 30 pounds; the little blue duyker (*Cephalophus monticola*); the kleene-boc (*Cephalophus pygmaea*), and the tiny pah, or dik-dik (*Madoqua saltiana*), measuring from 10 to 13 inches in height and weighing six to ten and a half pounds, would be most desirable animals for this purpose. All bush feeders (browsers), being easily tamed, thrive well in captivity and produce most delicious venison. These are adapted to our Central, Southern, and Pacific Coast States. It may be questioned by some whether these animals would succeed in the regions mentioned. The peacock, and most of the larger varieties of chickens from India; the guinea fowl, and the thousands of negroes from Africa, have sufficiently proved their adaptation to other climates than that of their native country. Few cattle breeders in New York can show a better record with the domestic cow than that made by the Central Park Zoological Garden in New York City with the famous hippopotamus cow, "Miss Murphy," from which they successfully reared 7 out of 8 calves. With intelligent care in their introduction and handling, the risk would not be great. The benefits to our country in strengthening our meat-producing capacity would be of great and constantly increasing value. The profits in the breeding and dissemination of these animals offer a fine investment either for our Government or for the individual.

Because these animals have not been introduced is not a sound reason why they should not be. Seriously, we need every additional species that it is possible to secure before its extermination takes place. Of the more than 100 species whose flesh is both palatable and nutritious we can find a place somewhere in our great country that will be adapted to the successful propagation of each. Our people will never accept kindly the conditions that according to press reports exist now in Germany, where during 1907 there were slaughtered and the meat sold for food 38,000 horses and 14,000 dogs.

The serious condition of our American fishing industry and the decrease in numbers of seven out of our ten meat-producing creatures should cause every thoughtful person to render immediate aid in preserving and adding to our meat-producing creatures. It is a duty we owe to our country, to ourselves, and to our posterity. It will require time, skill, patience, and money to get our meat production on a basis where it will again keep pace with the increase in population.

It is a sad commentary on our twentieth century civilization, that instead of preserving the wild mammals wherever found, at least until a sufficient number may be brought under domestication to insure their perpetuation and propagation as a heritage for our posterity, we are relentlessly hunting and shooting them down without the slightest regard as to whether the animals at which our guns are aimed are the last of their sex or species. The conservation of mammals useful as food to man is infinitely of greater importance than is that of many other resources now receiving earnest consideration.

The CHAIRMAN. If there is nothing further from Mr. Irwin, you may present your next speaker, Mr. Broussard.

Mr. BROUSSARD. I now desire to present to the committee Capt. Fritz Duquesne, formerly in the Boer army, who is lecturing and writing on this subject in this country.

STATEMENT OF CAPT. FRITZ DUQUESNE.

Captain DUQUESNE. Mr. Chairman and gentlemen of the committee, I speak from another point of view than Doctor Irwin. Of course he speaks from the point of view of the scientific man. I speak from the point of view of one that is practical in the matter. I was born in Africa, and bred among these animals that he has been speaking of. I am as much one of the African animals as the hippopotamus. I would be a dead animal if it were not for the hippopotamus, because most of my early life was spent eating hippopotamus.

As to the quality of this animal as food, I just want to call your attention to the vigorous race of Dutchmen that were in the Boer war. There was nothing mentally or physically defective about them; and they lived on hippopotamus. It was the easiest animal for us to get. It is a rather shy animal, and confines itself to where it can get food. Doctor Irwin said it will go 15 miles after food. It does that in Africa. It will go even farther than that, because it has kept the streams clear of water vegetation.

In Louisiana the streams are being completely stopped by water vegetation. The fishing industry on the rivers is being ruined; the water is polluted, dirty, and practically useless as a means of drainage to the country. If any of you have looked at the pictures of Africa, where Roosevelt has been, you will find that all of our rivers are clean. They have clean surface water. It is only in the shallowest streams that the lilies will grow.

Why do not lilies grow in Africa? We have the hyacinth down there, but it does not grow over the country like it grows here. You have nothing to destroy it. The hippopotamus will eat all water plants, all the aquatic plants. It lives on them. It will never leave a river where it can get food. According to Mr. Broussard, with whom

I have spoken about the matter, there are millions and millions of acres of that stuff down there that could be used for hippo food.

As far as the domestication of the hippo is concerned, it is bred in the Pretoria Zoo and in the different zoological gardens—in Mozambique, in your own New York here, and in various other places; in Antwerp, in Berlin, etc. Hagenbeck breeds the hippopotamus for exportation. He sells them to circuses, and charges \$8,000 apiece for them. It is a very profitable undertaking. The animal can be led; you can feed it on a milk bottle, like a baby. It can be led. It is absolutely not dangerous. Of course if you take an express rifle and put a bullet into it, no animal will stand that. It might turn on you then. But you must remember that in Africa the animal is fighting the crocodile and the human being—the white man, especially. The crocodile follows the hippopotamus; it will follow the lady hippopotamus when she is going to increase the family, and gobble up the young one before the mother sees it. Naturally the animals are a little bit vicious under those conditions. But where the crocodiles have been exterminated, the hippopotamus is as tame as a common garden cow.

As far as the commercial value of the animal is concerned, it is considerable. As Doctor Irwin says, it runs from three to four and a half tons in weight. Some of them go up as high as 5 tons. They are the greatest food-producing animals in the world. Living on cheap fodder, as he said, they will gain a hundred pounds of flesh a month after birth until they reach the weight of 4 tons. They have a fairly valuable ivory. Of course it is not as valuable as the ivory of the elephant; but when they are 3 or 4 years of age they have fairly good teeth, which are valuable. The bones are very valuable; and the skin is one of the most valuable things that the Boers have in Africa.

The CHAIRMAN. How is it used?

Captain DUQUESNE. It is used for every purpose that leather is used for. We have sent the skin to France and to Germany. It is "kipped"—that is, it is split and made into ordinary leather. It is almost as transparent leather as greenhide. It is very valuable for the covering of automobiles and automobile wheels. During my boyhood days the French soap manufacturers used to come down there and pay us all sorts of prices, competing with one another, to get the fat of the hippopotamus; and we made a considerable amount of money from saving the fat when we killed a hippo. The Boers were in the habit of going down to the river and killing a hippo and bringing it in and dividing it among the different families in the district. It is pretty hard to get rid of four and a half tons of meat. In the case of the bones of the animal, we would take an ordinary wood saw and saw them in halves, and make a great big pot of soup for a large number of people, including the Kaffir servants on the ranch or the farm, as we call it.

There are a good many hippos in Cape Colony. There are a few in Zululand. They have been practically exterminated there. There is no danger of the animal becoming a pest by natural increase, for the simple reason that it is too big. It breeds only once a year. If you will look into the history of animal life, you will find that there is no animal that breeds only once a year that can not be easily exterminated. That has been the fault with your own country: You have

exterminated even the birds that have dozens of young a year. You have wiped all of those animals clear off the face of your map. Of course the English sparrow and the rabbit are quite outside that category, for the simple reason that the rabbit will breed 120 young a year from its own stock.

Besides the hippopotamus there is the African buffalo, that would live in marshes that at present have nothing on them, according to the people who are thoroughly familiar with your marshes. At the best you breed crocodiles. The African buffalo will live in the marshy country. The leather of the African buffalo is far superior to any domestic leather now made or used. The hide brings a very high price in Africa. So much do we think of those hides—and, mind you, we have every domestic animal that you have in America, besides all our wild animals—that we always use the hides in Africa. We never let the buffalo hide go out of the country if we can help it. It is the strongest leather for harness and the strongest shoe leather.

Then there are all the different animals that we have—especially the eland. The eland is an animal that runs from 800 to 1,500 and 1,600 pounds in weight. Its habitat is the desert country, where no domestic animal at present known will live. These animals shun farms. They do not hang around farms and hang around human beings; so they will be no menace to the farms. They are not fence-climbing animals. The difficulty we have had among the Boers is to keep those animals in our country. As fast as we settle it, they have retreated into the interior. You have a vast expanse of dry interior in your West and in your South where those animals could live.

We also have down there the water buck, another valuable animal for flesh and for its skin.

To go back to the hippopotamus for a moment, remember that the hippopotamus has a very excellent flesh. If those animals were castrated and treated the way you treat your domestic animals, I think their flesh would be equal to anything you have in the world. We have tried that; we have castrated them and we have used them. We have used them at 2 and 3 years of age. They have made splendid food—excellent food. They could not be better.

All of our animals down there are harmless when they are domesticated—that is, if you breed them around the farm. The springbok, the trekbok, the duyker, and the koodoo are all fine, big animals. Then there is the giraffe. The giraffe is one of our best African animals for food and for leather. The beauty of the giraffe is this: It is called by us the "kameel"—"camel" in English. Of course it is not a camel; it is a camelopard. That animal lives in the desert. It selects the desert as a home, and it lives on the scrub of the desert. It does not live around water. It does not want water. It is constructed somewhat after the fashion of a camel, and its flesh, on scientific examination, is found to be the very purest flesh. It has absolutely no uric acid, which the other animals all contain. That animal can be domesticated. It is most harmless and it is almost childlike. Its only defense is to run, and it is something of a runner, I will tell you. Of course it has a large watchtower neck, which preserves it in Africa.

There are a great number of other animals that it is unnecessary to go into, because they are all more or less the same in this respect; they are all the same because they are different. The animals in Africa

adopt different habitats. The klipspringer, for instance, will adopt rocky country as a home. It lives in the rocky country and it will spring from rock to rock. The word "klipspringer" in our language means a "stonespringer"—springing from stone to stone. That animal lives in a character of country where no domestic animals live. The eland lives where domestic animals can live, but do not live. The same is true of the koodoo. The same is true of the reedbuck. The duykerbok is the same. All of these animals have selected as habitats places that will protect them, where they can get away from the lions.

As you know, Africa has millions and millions of game animals running wild. They are alive to-day because they have selected habitats that are a natural protection to them. They would all be dead if it were not for that. You know we have lions, leopards, cheetahs (a sort of wolf), jackals, the hyena, and the crocodile, besides a great many other animals that are preying on our wild game—that is, on our ordinary quadrupeds, the mammals. And yet to-day they are alive in thousands, and in some places it is estimated that they exist in millions between Abyssinia and Mozambique—all down that stretch of country, in the lake country.

Those animals are alive only on account of their fighting qualities and their protective qualities. They are very fleet runners. You could put them out West, here the mountain lions and wolves and other animals have exterminated the game. According to the reports from one of your committees or one of your bureaus here, it cost \$15,000,000 in loss of cattle and sheep and to hunt down wolves and mountain lions last year. I do not know whether that is true or not; but that is according to a statement that appeared in one of the papers. Now, a mountain lion or a wolf would not worry the animals of Africa. We have an animal down there, the oryx, which can not only destroy an American mountain lion, but it can destroy an African lion. Yet it is not an enemy of man.

In the case of most of our animals, the only enemies they have are the lions or the other carnivorous animals and man. They would not conflict in any way with the habitat of the present domestic animals in this country. They are all good food, and they are all excellent for leather. The Boers have proven that. It is only recently that we have gotten domestic animals into Africa. We have lived and our race has been built up on the wild animals, notwithstanding the fact that we have had perhaps more wars than any other race. We have been fighting the Zulus and the Kaffirs in general; and we lived on the wild game of Africa without any help from the outside. We have produced a pretty sturdy and strong and intelligent race—I think they are intelligent—just on these animals.

If these animals are good to build up a white race in Africa, why are they not good to use in this country? They are good. You have here hundreds of miles of country that is exactly like the habitat of our African game, and would breed those animals, which can all be domesticated. Every desirable animal we have in Africa can be domesticated. King Menelik domesticates the lion. I would not recommend bringing the lion into this country, of course; but it stands to reason that all these other animals, if introduced into this country and put into a suitable climate, could be bred here.

My father was instrumental in sending the camel to Australia from Africa, and also in introducing it into the Kalahari Desert. The German Government now uses the camel exclusively for its cavalry in the Kalahari Desert, which is practically the counterpart of the deserts in this country, according to what I understand from people who are familiar with your deserts and the Kalahari Desert. Major Burnham, here, can testify as to that. He has been all through that country, and knows it thoroughly. Many of these camels were taken from Afghanistan and north Africa to south Africa and Australia. My father had the contract to take them over to Australia for the Western Australian government, and I took them over there. To-day camels and ostriches from Africa are being raised in Australia.

To-day camels are used exclusively in the Kalahari Desert and all through the great African deserts, where men died with thirst and hundreds of people were lost. To-day the Afghans and the whites take the camels and use them as pack animals; and not only that, but they are good draft animals. Bred as we breed them, scientifically, and not the way the Afghans breed them, they carry 800 pounds. One man can drive a string of a thousand of them. He only has to lead the first one, and the others walk after it. No roads are required. They make their own roads, and they require practically no food. Wherever there is desert, and a little cacti, or anything like that, the camels will eat it; and they will go for seven days without water. They are excellent food; and as Doctor Irwin says, they are fine milkers. The natives of the desert in Africa and Asia not only milk the camel, but they make butter of its milk, just the same as we do of cow's milk.

That is about all I have to say on the subject.

The CHAIRMAN. We are very much obliged to you.

MR. COCKS. I should like to ask the gentleman a question or two. How about the matter of temperature?

Captain DUQUESNE. The temperature apparently makes very little difference. You see, although Africa is right under the line—the equator goes through it—when you take a train into the country, it is going up hill all the time. Africa goes up this way [indicating]. It is practically a mountain with a flat top sticking up through the sea. The farther you go into the interior of Africa, the higher you get. If you have ever read about the Kongo, you know that the Kongo River runs a little way and then drops. It is a succession of cascades or waterfalls—cataracts, we call them. There are 200 miles of cataracts here and there. That is where the water runs down hill.

MR. CHAPMAN. Do you think animals such as you have mentioned could become acclimated here without difficulty?

Captain DUQUESNE. Yes. I was over there recently in one place where Colonel Roosevelt passed through, and the frost was that thick [indicating about one inch]. That is where he went to get some of his best animals.

MR. HAWLEY. Whom did you say?

Captain DUQUESNE. Mr. Roosevelt.

MR. HAWLEY. I thought he was called "Bwano Tumbo."

Captain DUQUESNE. The white men do not like to call him "Mr. Big Belly;" for that is what it means, you know. [Laughter.]

Referring to the matter of temperature, up in the high country where the Victoria Nyanza is—and, by the way, "Nyanza" means "lake"—it is very cold; so cold that the people and animals that live there have to come out of the places where they live and sun themselves before they can move around. They come out and lie on the rocks until the sun practically melts them into life. Early in the morning you can pick up a python about as long as this table with comparative ease, and it will not hurt you until it gets melted a little; and then it is another python. It is resurrected every day. It is a common thing to see a thin skim of ice, perhaps from an eighth to a quarter of an inch in thickness, over the shallow pools. It just freezes, even up there, and right down into the country. It gets very cold down in South Africa in the Kooroo land, where the elands—large herds of them—were first seen by the Boers. To-day there are a great many elands on the Kalahari Desert. Anybody that has done any traveling on the desert knows that as soon as the sun goes down, and the sands radiate the heat, it gets so very cold that you nearly perish; it makes one tremble. So we have every kind of temperature in Africa.

Mr. COCKS. You have not much snow, have you?

Captain DUQUESNE. We have on Mount Kilimanjaro. We have perpetual snow there.

Mr. COCKS. But how is it where these animals live that you are speaking of?

Captain DUQUESNE. There is a considerable amount of winter, but little snow falls in the desert country; and there are stretches of it where the animals will migrate as it gets cold. They go from place to place.

Speaking of the eland, I will state that just before the Boer war there was a member of the New Zealand government over there buying elands. There is a great deal of snow in New Zealand; and I understand that the elands have increased and are thriving wonderfully in that country.

There is another animal that would be very valuable here that a number of the Congressmen have spoken to me about, and that is the large zebra—the big zebra. If you cross it with your mares it produces a very fine style of mule.

Mr. HAWLEY. How many hands high?

Captain DUQUESNE. A big zebra runs from 14 to 16 hands high.

Mr. COCKS. Have you seen our breeding stock out here at Bethesda?

Captain DUQUESNE. No; I have not.

Mr. COCKS. You ought to go out and look it over.

Captain DUQUESNE. I should like to look it over. I can give you an expert opinion on that subject.

Mr. HAWLEY. Is the zebra docile, or has it a vicious strain?

Captain DUQUESNE. There is nothing wrong with the animal. The English in Africa want to get percentage, you know. They put an animal out, and they want to break it in right away, and they want to get some money for it right on the spot. That is what they are in Africa for. They want to take the animals and break them in at once. The Germans are more scientific than the English. In German East Africa they are making a great success of domesticating all these animals I have spoken of, and crossing the zebra. Not only that, but I have photographs of the zebra in harness, being

driven like an ordinary horse—a pure-blooded zebra being driven like an ordinary horse.

Mr. LAMB. I wish you would go out there and tame that one for those people. He simply "eats them up."

Captain DUQUESNE. Perhaps they wait until the animal grows up and then they try to do it. The wild horse is a pretty tough proposition, you know. It takes time to do these things. In three or four generations I think you will find that the zebra will be so tame that you can not keep him out of your bedroom.

Mr. COCKS. Have you ever had any experience with the cross-bred animal?

Captain DUQUESNE. Yes, sir; we have bred them in Africa. We have tried all those experiments.

Mr. COCKS. Are they the equal of the mule in endurance?

Captain DUQUESNE. Yes; and not only that, but they do not get sickness as quickly as any of the other animals. Major Burnham can testify to that. He has been all through German East Africa, where for six years they have carried on various experiments.

The CHAIRMAN. Are they preferable to the mule in any respect?

Captain DUQUESNE. We consider them so.

Mr. BROUSSARD. Here is a photograph of one being ridden. [Producing photograph.]

Mr. HAWLEY. Do they have more stamina than a mule?

Captain DUQUESNE. Yes. If you look at a zebra or a zebroid or a zebrule, you will find those animals have a bigger and heavier rump. They are stronger and better animals. If you were ever kicked by one, you would know all about it. [Laughter.]

Mr. COCKS. A mule does pretty well in that line.

Mr. LEE. What do you call the "cross?"

Captain DUQUESNE. "Zebrules" and "zebroids." I do not know what the special names indicate. The English give them one name; the Belgians give them another; the Germans give them another, and the Boers give them another. All the African animals have different names in the different languages that they are addressed in, so that they do not know themselves when they cross into different territory. For instance, the gemsbok is a gemsbok in one place and an oryx in another. I do not know what they call the bastard eland. What is the name they call it?

Major BURNHAM. The roan antelope.

Captain DUQUESNE. Yes; the roan antelope. The English call it the roan antelope, and we call it the bastard eland. That is another very fine animal.

Mr. HAWLEY. Is the oryx the same animal that used to be found in southeastern Europe?

Captain DUQUESNE. I have read that it used to live there, but I do not know whether it did or not. There is very little doubt about it from the appearance of it. It looks very much like the unicorn. It has a straight horn like a sword; and it is a common thing for an oryx to get away with a lion. They have a straight horn, and if they hit anything it goes through. You will notice that all the African animals are fighting animals. They are all intelligent; their eyes stand out well; they have good, supple necks, and that is the only reason why they are alive. They would have been devoured by the lions long ago if it were not for these qualities.

Lions increase like dogs, whereas these animals increase one or two a year. It is those two things—their naturally selecting a habitat where they can not easily be followed, and their running and fighting powers—that leave them alive to-day. If the white men did not come in with their express rifles, they would be increasing and increasing until they would be shoved off into the sea.

I may tell you that the rivers down there where they have the hippopotamus are full of fish. The hippopotamus, you know, interferes with absolutely nothing but the vegetation in the rivers. If there is vegetation in the river, he will never leave the river. If you had the hippopotamus in Louisiana, and it ate up all of your water vegetation, you would be quite willing to let the hippopotamus live down there. At present an examination of the rivers is being made by Doctor Estopinal to try and find out a way of getting rid of this stuff. The War Department is spending a great deal of money, and I suppose the National Government will step in to preserve the fishing industry. You see, these water plants have to live on a certain amount of air, and the fish live on a certain amount of air. Neither the plant nor the fish can live on the air that is not there. As the plant is the stronger, and is able to take air from above, it will draw it at the bottom and draw it from the top, and the fish is suffocated in the water. Then when a storm comes and blows the water plants, which are floating, all to one side, the fish are netted up against them and kept in one place until they die. These plants exhaust the air in the water that is passing through the fishes' gills, and that destroys the fish. Anyone who looks at photographs of that part of the country will observe that they can not see the water at all. They simply can not see it.

Mr. HAWLEY. How many of these hybrid zebras are used down in your country?

Captain DUQUESNE. I do not know how many are used. That is hard for me to say. All the Boer experiments, which were going on very successfully, were stopped by the Boer war, and most of the animals were shot during the war for food. But now the English are starting again on it, and the Portuguese are doing it, and the Germans are doing it, and the Belgians are doing it a great deal. The Belgians are not only doing that, but they are domesticating the elephant. King Leopold is the man who suggested that there should be a school for the African elephants, which are much stronger than the Asiatic elephants. The elephant was used last by Hannibal in his invasion of Europe. That shows you what an animal it is. It crossed the Pyrenees. It went right around the Pyrenees, backward and forward. Hannibal was the last man to use them. That proves that the animal can be domesticated. It is considered a very fierce animal, but it is not so fierce. It has fine ivory and a fine skin. It is easily domesticated. They start at the wrong end; that is the trouble. Other people have done it.

As I say, King Leopold has put the elephant to school. The way they do it is to shoot the mother when she has the young elephant with her and take the young one. King Leopold's school is in the center of the Congo, with some hundreds of these animals, and he is letting them grow up. The people in India do the same thing. Of

course, it is somewhat different there, because the Indian elephant does not have the courage or stamina of the African elephant. It would not be advisable to introduce the elephant into this country, but it would be a very fine thing in Brazil. But of course that is outside of this argument.

Mr. HAWLEY. Have they ever used the hybrid zebras, in freighting teams for any length of time, to determine whether they will stand such work?

Captain DUQUESNE. Oh, yes; they have used them all through German Africa. They used some of them in Rhodesia, and they are used the same as horses. Of course a lot of them, as I say, were broken in after they were full grown. I have seen young, small zebras come right into the house. You can not shove them out. As Doctor Irwin says, the unfortunate part about it is that some of them get to be too tame.

But when you can do that with an animal you can almost do anything. I have seen a picture of Major Burnham's son riding one. When he risks the life of his son on one of these animals, it does not say much for its ferocity. I would be willing to ride one that I broke in—not one that they broke in in America—at any time.

I think I have about exhausted this proposition, and unless someone wants to ask me some questions, I have finished.

Mr. COCKS. Is there not a great deal of this water hyacinth in the Upper Nile country?

Captain DUQUESNE. No; that is not the hyacinth at all. That is the "soot" or "sud."

Mr. COCKS. Would the hippopotamus eat that?

Captain DUQUESNE. They can not eat that; no. It is practically wood. They have to use saws to cut it. It grows up close where the water is fairly swift, and the water runs under it. You can walk across some parts of the Nile without even knowing that it is the Nile at all. The papyrus and the bamboo washes down every year—that is, when the flood season comes—and it falls across the grass like that [indicating]. It falls on it, perhaps only one layer of bamboo this season, and then the stuff grows up through it, and the next season there comes along another layer. But that is practically wood. You have not got that in this country. It is built up like that [indicating], one thing on top of the other, until the river runs in a cave, subterranean channel. That exists a great deal in the Congo; but it has absolutely no relation to this peculiar vegetation here.

The CHAIRMAN. Are there any further questions? If not, we are much obliged to you.

Mr. BROUSSARD. Mr. Chairman, I should like to have the committee hear Major Burnham, who has had a great deal of experience, both in Africa, in this country, and in Mexico. He is a naturalist, and has devoted a great deal of time and study to this subject. At the conclusion of Major Burnham's hearing I should like permission to put in a short article written by him in the Independent, and have it included in the record. There are only three pages of it; and it covers this subject very thoroughly and in a systematic way.

The CHAIRMAN. We shall be very glad to hear Major Burnham.

STATEMENT OF MAJOR FREDERIC RUSSELL BURNHAM.

Major BURNHAM. Mr. Chairman and gentlemen, I will state that I am an American by birth. I have had a great deal of service in the Southwest and in our own frontiers, and also about ten years of military service in Africa, on the west coast, in central Africa, Congo, Rhodesia, and other parts.

Referring to what Mr. Irwin stated about the camel, I will say that when the herd of camels was turned loose in the Southwest, a friend of mine (a cowboy) went with me down on the Gila River, and we were five days chasing one of those animals with the best horses we could get in Arizona. We finally caught one, and it took us three days, handling it as carefully and gently as we could with ropes, before we could ride it. But we did ride it. We had plans laid out then to cross what is called the Death Valley country, and go on across into the Panamint country, and from there into the Owens River country, to Independence. That was our destination. One of the Apache wars broke out at that time, however, which was more interesting than breaking camels, and we both went off to that.

Afterwards the herd of camels increased down there and they did very well. They roamed clear down from the Gila River to Sonora, but nobody paid any particular attention to them, except to occasionally kill one for the meat. Finally a man came out from Connecticut, I believe, and gathered them all up and sold them to a circus, and that closed the chapter.

Mr. BROUSSARD. Major, would you mind telling how these camels were brought here?

Major BURNHAM. I think Mr. Beale brought them here, though I would not be positive about that. They were brought here in the early days and taken to Texas for use in connection with transportation across the desert. They made the mistake, however, of not bringing anybody who understood the camel. We think we are a very progressive people, but, as a matter of fact, when we go abroad we come to the conclusion that the Americans do not know everything. The Australians have made use of the camel a great deal better than we have. The Dutchman can handle an ox better than any American that ever lived. I had to learn that, much against my prejudices, when I arrived in Africa; and there are a good many other things that they can do better than we can.

We brought the camel over here, but we did not bring the men that could teach us how to use it. When you put camels in charge of a man who does not understand them, I am free to confess that you are doing about as sensible a thing as if you should take a man from a pile of brick and mortar and send him out west to catch a broncho and ask him to kindly go out and ride it. [Laughter.] He has several things to learn. When the camel is handled in the right way, and the men learn to handle it, it is the most useful animal that can be imagined. I can corroborate almost everything that Captain Duquesne has said with reference to it. There is no use of my repeating it.

Referring to what Mr. Irwin said about the zebra: One of the gentlemen at my left asked quite a number of questions about the zebra. I took part in the capture of 96 zebra at Nairobi—just above Nairobi, really at Naivasha. We built a great wing, 2 miles or so in length, and we got 2,000 beaters, and we drove them in. We drove in five

or six hundred head of game, and among them were 96 zebra. For several weeks I had a couple of cowboys over there, good riders, and we had some Somalis and others; and we tamed the zebra in a way and rode them. One out of the whole herd seemed to have a quiet disposition—so gentle that I have even allowed my son, who was then a little boy 5 years old, to ride it.

But the final conclusion that we arrived at in regard to the zebra question was this: It is possible to ride them; it is possible to drive them; but they are sullen and have not got the heart to pull and work that either the mule or the horse has.

It is possible that after many generations, constantly selecting the gentlest and the best dispositioned, a breed of zebra might be produced that would be valuable. We tried to produce them there on account of the tsetse fly being so abundant, and killing all domestic animals. We discovered that when we corralled the zebra and held him in a big pasture, feeding him the same grass that he ate right in his natural habitat, he developed a disease in the way of some small pinworms that worked into the aorta (the big artery coming out of the heart); and it killed a good many of those 96 that we captured. We had a very good veterinarian there from England in charge of the work—a Mr. Sturdy, a man enthusiastic in the propagation and crossing of the animals.

Another experiment was carried on in Rhodesia, when we took the American coaches from Johannesburg to Buluwayo, a drive of 500 miles, by mules; and a great many of them died of the tsetse fly. Mr. Ziebrink, a very enterprising man, introduced the zebra, and they domesticated them and hitched them into the coaches. But there, again, the animals get sulky; they refuse to pull, and you can do nothing with them. They are more like a burro—more like a donkey; they have a disposition more like a donkey. They are quite gentle. They would come up and eat out of your hand; and we had them loose, running around the streets of Petersburg there perfectly free, more like a pet burro or a donkey. But as a pulling animal the zebra is probably too closely allied to the wild. It would take many, many generations to make a success of it, and I should expect the same results in this country as in that.

The CHAIRMAN. What has been your experience with the cross?

Major BURNHAM. The cross seems like almost all hybrids; it seems to inherit the evil dispositions of both father and mother. Whether that applies to man or not (I think it does, too), it certainly applies to all the animals.

Mr. HAWLEY. Does the zebra have a characteristic gait?

Major BURNHAM. He has a swift trot. In harness he trots a good deal like a mule. Of course he can gallop. It takes a very good, quick horse to pick up a zebra. Of course a good horse will pick him up all right, right in his native habitat. I ran down some zebra on the first expedition I made into Rhodesia. A couple of well-known hunters in Rhodesia and myself ran down some zebra and captured them with our saddle horses, but they were excellent horses, brought up from Cape Town.

The experience I have had in the Southwest makes me believe there is nothing in the climate of the Southwest to prohibit the introduction of practically all the game animals that were men-

tioned by Captain Duquesne. I believe that is true. I think we are allowing one of our great assets to lie idle and go to waste by confining ourselves, as Mr. Irwin said, to only three or four animals, and even those animals were imported.

The original condition of this continent was that it was almost devoid of any valuable animals. We brought into the country the horse, the cow, the ass, the sheep, and the goat; and they have all gone wild and thrived. Great herds of cattle roam the western plains, and great herds of horses. The average American thinks that they have always been here and that they were found here, but it is not so. They were brought over by the Spaniards, and the Mexicans adopted them. If those animals could be adopted into our western country, I do not see why the game animals can not be adopted, too, and find the particular food which they are used to, which is more of a desert food. We know that in Africa the wild animals live where the domestic animals will not live. We know that there are probably thousands of square miles of desert land in our own country, and I believe these animals can be utilized to fill it. We may have some failures or even a good many failures about their introduction. One can not always avoid mistakes. The farmer does not take one seed and plant it and expect that from that one seed he will raise a whole crop. We must not make the mistake of taking one pair of animals and expecting that they will populate the whole territory. But with reasonable care and skill and brains, and with the Department of Agriculture having charge of the matter, I do not see any reason why we can not have great success.

I thank you, gentlemen.

Mr. HAWLEY. I should like to ask one more question on a different subject. Do you think the date palm would thrive in the Southwest?

Major BURNHAM. I believe it would, but I can not say that I am an authority on the subject. I am interested in a great irrigation reclamation scheme in the Southwest, in Sonora, where we are taking water out of the Gila River on to about 1,000,000 acres of land. The question of the date palm has come before us very strongly, and the dates there seem to thrive very well. There are several coarse varieties that grow there and mature, and are quite palatable. We have robbed the Government of what we believe to be one of their good men—a soil expert by the name of Mackay, who is in our employ. He is taking up that very question in conjunction with a couple of horticulturists of Texas, whose names have passed out of my mind for the moment. We have had quite a correspondence on it; and if we have any results of value, it will give me great pleasure to let the department here know.

Mr. BROUSSARD. Major, you own a ranch out in California, I believe?

Major BURNHAM. Yes; and I am sending some game there now from Mexico. This matter of the introduction of strange animals is a lifelong hobby of mine. I got the hobby when I helped capture that wild camel, and it has clung to me ever since. Just now I am sending some game from Mexico into California. I have a ranch right adjoining the forest reserve under Mount Whitney; and I am

introducing there the small white-tailed deer of Sonora, whose flesh is most delicious, and also some of the peccaries.

Mr. BROUSSARD. The "havinilas?"

Major BURNHAM. Yes; that is what they are—the havilinas.

Mr. BROUSSARD. Major, can you tell the committee something with regard to the government reservations and what use could be made of them in this respect?

Major BURNHAM. Yes. About three or four years ago some friends of mine and myself offered to put up \$50,000 to put some game animals into the forest reserves. We then asked that the President be given permission to set aside some of the forest reserves as game preserves also to prevent some county jumper running out with a rifle and shooting the game the next free Sunday after he heard it was turned loose. We asked that the forest rangers be made deputy game wardens, to arrest anybody that would shoot these animals for a certain number of years, leaving the matter entirely in the hands of the government department to control in the finish. But I was very busy at the time, and I had to go to Mexico; and "the child died a-borning."

Mr. COCKS. How about the hybrid buffalo? Is there any possibility of doing anything with it?

Major BURNHAM. I do not think the African buffalo has ever been crossed.

Mr. COCKS. I mean our bison.

Major BURNHAM. Our bison? There are so many men in this country that are more expert on that question than I that I do not like to be quoted at all. I am familiar with the buffalo, of course. In my boyhood days on the plains, and all that, I was familiar with it. But what I know about it is more from observation and hearsay, and not from practical experience.

Mr. BEALL. It is a fact that Mr. Goodnight, up in Texas, has extensive herds, is it not?

Major BURNHAM. Oh, certainly. They have been crossed, and we have every reason to believe that they will be a success, and be of great value.

Mr. BEALL. He calls them "cattalos."

Major BURNHAM. "Cattalos;" yes. We have not made use of our own game animals. Take California, for instance: In my boyhood days the elk were there in herds. We slaughtered them. Now we are just beginning to preserve them a little bit. In the forest reserves and in the Yosemite National Park they have a few of them, and they are just beginning to breed again. Last year, down close to my place, I saw two young ones; so it is encouraging, and I know they will grow again if we give them a proper chance. In the case of the wild turkey, we are just importing a few of them from Mexico. I have just had a request from the game warden, in Sonora, asking me if we could not assist them to get some wild turkeys. They are quite difficult to get; but I believe they, too, could be imported successfully.

Mr. BROUSSARD. You live in California, Major. Have you ever been to the ostrich farms?

Major BURNHAM. Oh, yes. The ostrich farms are a success there.

Mr. BROUSSARD. They do well, do they?

Major BURNHAM. They do well. I have helped catch them, and have used lots of them in Africa. I am quite familiar with the ostrich.

Mr. BROUSSARD. They thrive?

Major BURNHAM. Oh, yes; they thrive the same as chickens.

Mr. BROUSSARD. What about the reindeer?

Major BURNHAM. The reindeer that were introduced into Alaska are all right. Mr. Jackson brought in the first herd. They had a good many difficulties and a good many things to learn about them. They brought some Lapps along, but the Lapps themselves did not know everything, because the conditions were different. But as the result of the combination of the Lapps with some scientific study of the subject, I think it is conceded by the Alaskans themselves that the importation of reindeer is now a success. I think that can be looked to as one of the great successes.

Mr. BROUSSARD. When did they commence bringing reindeer into Alaska?

Major BURNHAM. I saw the first herd of reindeer in Alaska in 1898, I think.

Mr. BROUSSARD. Do you know how many were brought in?

Major BURNHAM. I should not like to be quoted on that point. It was not a great many; I think only about 28.

Mr. IRWIN. They were brought from Siberia.

Mr. BROUSSARD. But how many were brought?

Mr. IRWIN. Twenty-eight, I think.

Major BURNHAM. You will find it all in Mr. Irwin's book.

Mr. BROUSSARD. There are quite a herd here now, I believe.

Major BURNHAM. Do not quote me on that point, please. I believe there are now something like 19,000. They have imported other herds since.

Mr. BROUSSARD. Have you ever shot pheasants in Oregon?

Major BURNHAM. Yes; I have. They are fine.

Mr. BROUSSARD. They were imported, also?

Major BURNHAM. Yes.

Mr. BROUSSARD. Do you know when they first brought them into Oregon?

Major BURNHAM. I know that in 1885 they had been in just a very short time. At that time I saw a few of the pairs that had been turned loose in 1885 in the State of Washington, in what is now Okanogan County.

Mr. BROUSSARD. They are very plentiful there now?

Major BURNHAM. Oh, yes; they are very plentiful now.

Mr. HAWLEY. The ring-necked pheasant, as we call it, is a very fine game bird.

Major BURNHAM. Yes; a very fine, beautiful bird.

The CHAIRMAN. Are there any further questions? If not, we are very much obliged to you.

(The following article from the Independent of February 10, 1910, was, by direction of the committee, included in the record at this point as a part of Major Burnham's statement:)

TRANSPLANTING AFRICAN ANIMALS.

BY MAJ. FREDERIC RUSSELL BURNHAM.

[Major Burnham writes with exceptional authority on the possible adaptation of selections of the game of Africa to the semiarid regions of our Southwestern States and Territories. From earliest boyhood the life of this remarkable son of a Protestant missionary on the Minnesota frontier has been a drama of far-ranging experience and thrilling adventure, graphically sketched by Richard Harding Davis in his "Real Soldiers of Fortune." For fifteen years he roved the West from Hudson's Bay to Mexico, until he was tempted to try his fortune as a prospector on the South African gold fields in 1893. Soon after landing at Cape Town he was induced to head the scouts in the Matabele wars and the conquest of Rhodesia, and when he sought the new field of the Klondike he was recalled by a cable from Lord Roberts to become chief of scouts for the main British army in the Boer war. His daring service made him heroic in the eye of the army and people and he was signally honored by the presentation of the Distinguished Service Order by King Edward personally. After the war he headed an expedition to explore East Africa as a director of the British East African Syndicate and spent two arduous and perilous years in determining the resources of the new province and the openings for settlement. He is now closely associated with John Hays Hammond as executive head in the reclamation of a great tract in Sonora, Mexico.—Editor.]

There is in Africa a wonderfully varied range of interesting animals. Most of the desirable ones could easily be introduced into our own Southwest. They would multiply where our own domestic animals can not live. Vast tracts of our lonely deserts could be teeming with life interesting, beautiful, harmless, very useful for food and leather, displacing not a head of our cattle or other domestic stock, offering a grand hunting ground, a true pleasure land to all lovers of animal life.

Throughout all the foothill region and far south into Mexico, the bushbuck would thrive. It is mostly a browsing animal, about the size of our deer; one variety has peculiar white markings, like a harness, and it is called the harness buck; the horns are slightly spiral, measuring about 15 inches in length. Great skill is required to stalk it, and a quick, sure shot when found, or it will escape every time. Its flesh is of very fine flavor, and its hide makes one of the strongest leathers known. It is commonly used by the Boers to make forelashes on their immensely long ox whips and stage whips. Another possible importation is the oribi, a marvelously swift and graceful gazelle, weighing about 30 pounds, which ranges over the drier regions of Africa, especially in the north. The gemsbok, called the oryx in the north, is a much larger animal, which is equally adaptable to conditions in this country. Its marked characteristic is its perfect, straight, tapering black horns, that reach a length of 36 to 40 inches. The buck weighs from 200 to 250 pounds, and will fight savagely when hard pressed. It has been known to kill a lion with its dagger-like horns. The gemsbok is a true game animal, and can live out on the desert a hundred miles from water. Its eyesight is wonderfully strong, so that it is exceedingly difficult to stalk. Its meat is well flavored and its hide equal to the best calf. The gemsbok should have for a pal on our plains the speedy sesipe. I think most of the hunters of South Africa are well agreed that the sesipe is the fleetest antelope known. Some swift horses are bred in South Africa, but it is a rare one that can outfoot this game. The Posselt brothers had the only horses in Rhodesia that I ever personally saw run down a sesipe.

The springbok, that corresponds to our pronghorn, is readily bred. It is a beautifully marked antelope, and exceedingly agile. Often a whole herd in running will give a series of marvelous bounds several feet high, and, it may be, 30 feet span, apparently for sheer joy in the sport. A wagon road across the veldt will almost always tempt them to show how far they can leap. The Boers on the farms now preserve them, and have a series of great hunts every year, coming with their families and wagons and making a picnic of the chase, each farmer taking only what he needs, or what the herds can well spare, to avoid overstocking. In the hilly country the roi buck and duiker, as well as the quick darting stembok, add variety to the small game, all successfully preserved now, and adding to both the food supply and the charm of life in the African veldt.

East Africa, broadly viewed, seems designed by nature as a vast game preserve, and should be held largely with this aim in view, for the greater part of the country is of no value for settlement. The English Government, on the strong advice of its local officials, has set aside a domain that shelters everything—the elephant with its valuable ivory, even the lion. Yet these officials, almost to a man, are skilled hunters and fond of sport. But they restrict themselves, as well as others, and allow in no part of the country indiscriminate slaughter. Possibly from this preserve we may, at some future time, be allowed to bring enough specimens to start a herd in our own country. We, too, have an immense area, fully 1,500 miles long and 1,000 wide, that would hold

countless thousands of rare game to add greatly to our national wealth, and furnish a reserve food supply.

Take, for example, the giraffe, which is a browsing animal, living almost exclusively on a thorny scrub, like the mesquite. Its flesh is very palatable and its hide extremely tough and serviceable, making the favorite lash of the Boer, and a shield for the Somali warrior that no spear can pierce. This picturesque and harmless animal would thrive from the borders of Nevada to Texas, and far into Mexico. No enemy save man would touch it. A full-grown animal weighs over a ton, and must stoop his towering head to feed from your hand at the second-story window of a good-sized house. In contrast, there is that little fairy antelope, called the dick-dick, with sharp hoofs the size of a dime, and jet black horns about an inch and a half long. It weighs about 15 pounds and stands a foot high. It is easily tamed, and its flesh is of delicate flavor. In South Africa it goes by the name of nosebuck, as its upper lip is prehensile, though it is a true antelope. It would thrive certainly on the cactus patches in our Southwest.

There is further the lordly eland, weighing from 800 to as high as 1,500 pounds. It can go great distances from water, and would help stock many an arid range if given the chance. On our cliffs and mountains the clipspringer would be perfectly at home, and think he was again in his own Rhodesia or Transvaal. Its peculiar hollowed hoofs enable it to cling to a pinnacle of rock that would baffle a wild cat or even a goat. It weighs about 40 pounds. Its hair is hollow and very springy, making excellent paddings for saddles, and its flesh is delicate meat. Like the gemsbok, it would be an excellent curative for weaklings if they hunted him in his natural surroundings. Mr. Warthog, big and ugly, would be quite happy and most useful in the everglades or swamps of the South. Many beautiful and harmless waders, flamingoes, plover, frankholins, cranes, herons, and certainly the royal bustard, could be introduced through all our southern lands very profitably. The ostrich would be quite at home in Arizona and New Mexico. It is already successfully introduced in California on fenced ranches.

In short, Africa is a wonderland of animal life to draw from. We can exclude its venomous reptiles and insects, and take the useful animals that have worked out from a hard environment a way to survive. By transportation to our land they would be delivered from their chief natural enemies. To this New World were brought the ass, the cow, the horse, sheep, goat, and hog. All of these ran wild at once and thrived, except the sheep, who is and always was a mollycoddle. Camels, valuable for both flesh, milk and hair, grew wild in Arizona from a government herd until an enterprising Yankee rounded up every female, old and young, shipped them East and sold them to a circus. Otherwise we should have had good-sized herds long ago, and made use of them, as the Australians have, if we were equally enterprising. The Cape buffalo would thrive also, but might be considered too fierce for the rising generation to play with. Anyone hunting him will not complain of a dull time. Its flesh is very good eating, and its hide much better than that of an ox. When a Boer wants a good pair of shoes he tries, if possible, to have the soles of buffalo hide.

The zebra would dot our plains with color if we gave it the chance, though, from experience, I do not think it a valuable animal either to work or ride, and its hide does not make a leather of any value. Its flesh is good to eat, and it is one of the most beautiful of all the game animals.

These are only a few of the animals and birds that might be introduced into our own vast solitudes, where, for hundreds of miles, can only be seen a lonely raven or solitary coyote. But it can not be, although there should be nothing to prevent it. In Africa the game lives ever in dread of attack. It is haunted by lions, leopards, hyenas, chetahs, wild dogs more savage than lions, crocodiles in every stream, eagles and vultures that prey on the young, pythons beside the trails, poisonous snakes, and other foes too numerous to mention. Yet millions survive and endure further the scourge of droughts and the hardships of the desert. Why, then, should these hardy game animals not thrive and multiply in a country exempt from these perils, with a climate corresponding exactly in range to that of their native land? We ourselves are the only reason why none of this precious game can ever live in our wild plains. So intent are we on destruction that we have become the wonder of the world. We have dynamited our fish, killed all our buffalo, carried off even his bones in train loads, then came back with herds of cattle, tramped out and ate out the finest natural grass ever known. When it was eaten level with the ground, for fear it might, with its great recuperative powers, renew itself, we have put that curse of God, the sheep, to tear it up by the roots and gnaw to death every little shrub left by the cattle. I have seen forest fires 40 miles wide burning in the Sierras to make early grass for herds of sheep. If it were known that a herd of eland were on the Rio Grande, a thousand guns would be after them and their hides sold to the near-

est tannery; even a rare bird would surely be slaughtered. Again and again I have known of individuals trying to introduce useful birds and animals; their fate is always the same. Only a national law and a changed public opinion can make it possible to ever either save what animal life we have or introduce new and valuable additions.

The man with a natural and wholesome love for sport and all forms of sturdy life is confronted by the ruthless pot hunters, who gather the eggs and feathers of every bird that flies, and trap, poison and kill every animal within reach for the immediate gain. To this class must be added a small number of simply destructive men who kill and kill and let the game rot where it falls; men who use a stick of dynamite to get a mess of trout, killing one hundred and catching, maybe, three or four. All these men naturally hate game laws. Still another class looks upon all sport and pastime, especially hunting and fishing, as so much time wasted. I remember an old farmer in Iowa saying he would be glad when the last duck was shot and the last fish caught, as then, maybe, he could get his boys to attend to the plowing. Well, he has his wish. His house now stands where it did in my boyhood. Not a duck nor a goose nor a plover ever passes by. Scarcely a bird, save the ominous raven, ever breaks the silence. The prairie chicken and quail are all killed; they sometimes ate the corn. The once clear stream is now the wallow of his favorite breed of hogs. Everything is as he planned it. Hogs and corn, barbed wire, more hogs, more corn. His wife is dead, his boys long years ago left the farm. His one happiness is when he goes into the hog pasture and calls "Suke, Suke, Sook, Sook," in quavering voice, more dismal to hear than the caw of the crows. Naturally he is against any game laws, and will poison the first covey of quail that cross his corn-field. Another element that opposes every form of hunting and fishing is the super-sensitive people who are teaching the rising generation that all life is sacred and that animals should not be sacrificed to the demands of man. These people would find in India this conceit of protection to life carried out to the full. Even the vermin that infect the natives may not be killed. When they become intolerable they are picked off and laid in the hot dust, their belief being that if God intended the pests to live He would cool the dust; otherwise they perish at His will, not theirs.

In the animal world nature seems to work out the essential end by means apparently harsh. If it were not for the natural enemies of the great game herds, they would increase so fast that there would be no food supply, and starvation would be their end. The greater part of the grass-eating animals are not long-lived. With the heat of summer the old must die of thirst and weakness. But as it is now arranged, the lion and leopard and many other enemies kill in one instant, or, at most, in a short, sharp fight, in which the animal can feel no pain. Its not yet emaciated body gives food and life to others. Furthermore, it is among the sick and weak that disease is spread, and infection there may reach a point that endangers the whole healthy herd. Always when some unnatural increase occurs, some disease sweeps them off. So even the lions and tigers, vultures and eagles, serve a merciful and proper purpose. In the countries where they are found, any animal that is born deficient in its faculties, or becomes ill or aged or wounded, is at once usefully destroyed as a means of preserving the high average of the herd.

STATEMENT OF HON. ROBERT F. BROUSSARD, REPRESENTATIVE FROM LOUISIANA.

Mr. BROUSSARD. Mr. Chairman, just one word. It is nearly 12 o'clock. This bill provides for an appropriation of money with the view of having the Secretary of Agriculture investigate the conditions of government reservations and unused lands in this country with the view of bringing to these lands animals coming from similar countries abroad, no matter where they may be found. It directs him to investigate the question as to the possibility of their thriving in this country, and their propagation, with a view to adding to the meat supply of the country. There is not any provision for bringing here any specific animal. But, as I understand the question, it is possible in almost every part of this country to get some kinds of animals to thrive that are useful to man in many ways and will add to the supply of meat for the country.

The Department of Agriculture shows that the population of this country is increasing at the rate of about 20 per cent annually, and the meat supply is decreasing in almost every line. That calls for some action with a view of supplying the deficiency. With the natural and proper encroachment upon the grounds formerly used for ranges by the farmer, who goes out and enters the land in order to till it, the question whether we can keep up the supply of meat so as to hold down the price to the consumer (an important factor in producing a sturdy, strong, hardy race of people) is, I think, one that is of the utmost importance for the consideration of the people of this country. It is particularly important to this committee, to which Congress has delegated the right to investigate this matter and find a solution for the conditions now existing.

The figures fixed in the bill are purely arbitrary. The committee probably would want better information than I have been able to furnish. I have merely set down these figures as a basis upon which the committee may act. I think, however, that it is very important and very essential that some action be taken at this time, with a view of starting this investigation, looking to the introduction of other animals besides the three or four kinds that we now use as a meat supply for the people of this country.

Of course the question of these same animals being used for beasts of burden is quite apart from the subject of the meat supply. At the same time, while one investigation is going on, it is possible without any additional expense for that matter to be looked into as well as the question of food.

I do not know how this matter will be received. It is a question of educating the people up to it. Very few people have given any thought to the subject until recently, when the price of meat has gotten so high that everyone is turning his attention to the reason for it.

My attention was directed to these investigations by men who started some years ago to give study to the situation. Doctor Irwin has done so; and my acquaintance with Captain Duquesne, and my recent acquaintance with Major Burnham, and conversations with them, suggested to me the possibility of using a lot of waste stuff in this country that is now producing nothing at all, but is rather an impediment to the development of the country. I refer to such vegetation as the lily in Florida and in Louisiana and in the southern part of California, which is impeding the streams, destroying the fish, and stopping the drainage.

The Government is spending a large sum of money annually to destroy this vegetation. In the present river and harbor bill there is an appropriation of forty or forty-five thousand dollars looking to the destruction of the lily. I have to contend with it all through my district. The engineers of the War Department are using their best efforts and their best men in seeking to destroy this water plant, which is of recent importation into the country, and has taken possession of all our streams. It covers them as a blanket. But they have only been partially successful. They clean a stream to-day, and in a month it is covered all over again with the same plant.

We have tried throwing oil on the plants. It destroys them. The oil does not penetrate below the surface of the water; the plant sinks to the bottom, and then it throws out another bulb and again rises

to the surface in full bloom. And very soon, before the boat has worked many miles from the place, the plant is there just as luxuriant as it was before the boat passed.

The effect of it is very serious in Bayou Teche. Some of you probably have been there. Most of you have read "Evangeline." It is a show place in our State. It is a very productive country. Millions and millions of tons of freight go over that little stream. It is a beautiful little stream. The lilies have gotten in there recently and the waters have become polluted. For some time we have been trying to ascertain the reason that the fish in that stream are dying by the thousands and floating on top of the water, creating a stench all over the country, bringing sickness, and making the water unfit for use. The state board of health has undertaken an investigation of the matter. The United States engineer located in that section was added to the board, and men of different vocations with knowledge of these situations have looked into the matter. Recently they reported that the lily had as much to do with the destruction of fish in that stream as any other agency that they have been able to discover. So that we are losing the fish, we are polluting the water, and we are bringing about an unhealthy condition of things down there, all growing out of the fact that this lily is covering that stream and making it impossible for the fish to live.

I thought that if there was an animal which could destroy this lily, improving navigation, and saving money in the direction of having boats and men constantly at work cleaning this stream of these lilies, and which at the same time would furnish a meat that I am told is very good to eat, it would be a good thing to introduce it. At any rate, its meat produced in very, very large quantities, and is made into bacon out in Africa and used as bacon. I thought that in this way at one and the same time we might be able to do away with the lily, which is such a nuisance to us, and add to the meat supply. Doctor Irwin tells me that in Florida and Louisiana alone 100,000,000 pounds of meat can be produced in these streams, and at the same time the hippopotami will be destroying the lilies.

It is just so in the desert lands. I have hunted considerably in the West, in Mexico. I have not been abroad to hunt. But the wild animals thrive where domestic animals will not live. The deer and the various kinds of animals that we have in this country thrive in some portions of Texas, where there is no water. I have seen them there. They get out of range of water, and are able to subsist on smaller things, useless things in other respects as applied to domestic animals. I thought that if all of these animals could be utilized, at least the subject was worthy of investigation with a view of reaching some conclusion that would add to the possibilities of development in this country.

The CHAIRMAN. Mr. Broussard, it occurred to me that it might be interesting to the department if some one representing it could be present, and also that members of the committee might like to make inquiries of some such representative. I have therefore asked Doctor Farrington to be here this morning. If the committee will remain in session perhaps ten minutes longer, I should like to hear any statement that the doctor may have to make, and particularly to hear his answer to a few questions that the committee may wish to ask him.

Mr. BROUSSARD. Mr. Chairman, may I ask whether that article will be incorporated in the record?

The CHAIRMAN. Without objection, the article to which Mr. Broussard refers will be included as a part of the statement of Major Burnham.

(The paper referred to will be found at the end of Major Burnham's statement.)

STATEMENT OF DR. ARTHUR M. FARRINGTON, ASSISTANT CHIEF OF THE BUREAU OF ANIMAL INDUSTRY, AGRICULTURAL DEPARTMENT.

The CHAIRMAN. Doctor Farrington, you have been present and heard the statements which have been made by the gentlemen who have preceded you?

Doctor FARRINGTON. Yes, sir.

The CHAIRMAN. What I should like to ask you particularly is whether you, or, so far as you know, any other officials connected with the department, have ever given consideration to such a proposition as is contained in the bill, and whether you would regard it as practicable or advisable, and whether in case the bill should be passed the department is equipped with men to carry its provisions into effect?

Doctor FARRINGTON. Mr. Chairman, I have not had an opportunity to examine this particular bill. I am connected with the Bureau of Animal Industry. As you know, that bureau has been in existence for twenty-five years. It was brought into existence for the purpose of excluding disease from the United States. We had a disease in this country known as contagious pleuro-pneumonia, which was brought from foreign countries; and the first work of the bureau was to exterminate that disease. We have always been on the watch for disease from foreign countries ever since.

Of course I can not say very much with relation to the good to be accomplished by bringing in these animals; but I think there might be a good deal of harm done by bringing them in without proper precautions. For instance, we do not allow the water buffalo to be brought in from the Philippine Islands. They have rinderpest, and sura, and other diseases. No warm-blooded wild animal is allowed to be brought into the United States from the Philippine Islands or from other foreign countries.

The CHAIRMAN. Is that under the provisions of the law, or is it merely a regulation of the bureau?

Doctor FARRINGTON. That is under the provisions of the law, which prevent the importation of animals exposed to disease or infected with disease.

The CHAIRMAN. Would that law prohibit the importation of hippopotami?

Doctor FARRINGTON. The law as it reads at present applies to horses, cattle, sheep, and other ruminants, and swine.

The CHAIRMAN. That is pretty broad. That would cover every animal.

Doctor FARRINGTON. I do not know what race of animals the hippopotamus belongs to; but we have not, of course, had any opportunity to examine the diseases of those animals. They did bring in

some buffalo from Africa; but they were required to be placed in quarantine, and we examined the blood of those animals, to ascertain whether it was safe to bring them in.

Mr. LAMB. That applies just to diseased animals.

Doctor FARRINGTON. We have to test them first to know whether they are diseased or not. Some of these animals that may appear healthy externally may carry in their blood some of the microscopic animals which render them harmful to the domestic animals of the United States. So any importations of this kind should be under proper precautions to prevent bringing in disease which would be detrimental to the live stock industry of the United States. That is the first thing—to preserve the industry we already have.

Mr. BROUSSARD. Mr. Chairman, may I ask the Doctor a question or two?

The CHAIRMAN. Certainly.

Mr. BROUSSARD. Doctor, this bill provides that the Secretary of Agriculture shall investigate and import wild and domestic animals whose habitats are similar to government reservations and lands at present unoccupied and unused, "provided that in his judgment said animals will thrive and propagate and grow useful either as food or as beasts of burden." Your objection to the introduction of these animals, as I understand it, is that they should not be introduced unless proper examination is had?

Doctor FARRINGTON. That is it.

Mr. BROUSSARD. Under the wording of this bill, would not the matter rest entirely with the Department of Agriculture to determine these facts before the animals were brought in?

Doctor FARRINGTON. I suppose it would; yes, sir.

Mr. BROUSSARD. So that these examinations would be had; and of course if any animal were offered to be introduced here that showed any signs of disease that might spread to domestic animals, under this law the Secretary of Agriculture or your department would exclude that animal; would it not?

Doctor FARRINGTON. Yes, sir. I think an investigation would have to be made to some extent in the country where the animals came from, to see what diseases were prevalent there; and then, of course, the animals would be placed in quarantine after they arrived in this country before they could be turned loose.

Mr. BROUSSARD. That would be your method of doing the thing if Congress were to appropriate any money for the purposes provided in this bill?

Doctor FARRINGTON. Yes, sir.

Mr. BROUSSARD. And this bill would not compel you to do any other thing but just what your judgment might direct in that respect?

Doctor FARRINGTON. Yes, sir. Our province would be to protect the live stock of the United States.

Mr. BROUSSARD. And you would do that if the discretion was vested in you?

Doctor FARRINGTON. Yes, sir.

The CHAIRMAN. I should like to ask you just a little further in relation to the present law. I have not read it recently. Do you think that law would have to be amended in order to make this one consistent with it? Does the present law actually prohibit the importation of the animals you name into the United States, or does

it merely declare that they shall only be imported when free from disease?

Doctor FARRINGTON. The provision is, "That the importation of meat, cattle, sheep, and other ruminants, and swine, which are diseased or infected with any disease, or which have been exposed to such infection within sixty days before their exportation, is hereby prohibited."

The CHAIRMAN. That applies only to those that are diseased or have been exposed or infected?

Doctor FARRINGTON. Yes. Of course they would have to be examined to see whether they were infected or had been exposed.

The CHAIRMAN. Yes; we understand that.

Mr. BROUSSARD. Mr. Chairman, I studied this law very closely before drawing this bill. It only applies to animals that are diseased. Whether they are cows, or horses, or whether they are elephants, or anything else (even the human animal is amenable to this principle), if they are diseased they are to be excluded. But the law does not preclude the bringing in of animals that are proven to the department to be healthy and sound.

The CHAIRMAN. I think you can take it for granted that the Agricultural Department would not let in diseased animals.

Mr. BROUSSARD. That is why, in drawing this bill, we have left all the discretion in the Secretary of Agriculture to do as he thinks best.

Mr. CHAPMAN. I should like to ask Captain Duquesne a question.

Mr. BROUSSARD. The captain wishes to ask Doctor Farrington a question.

Mr. CHAPMAN. All right; excuse me. Go ahead.

Captain DUQUESNE. It is this: You know that Barnum & Bailey and all the menagerie people have brought in a great number of animals from Africa. What provision is made for quarantining those animals?

Doctor FARRINGTON. They are quarantined under the officers of the Bureau of Animal Industry.

Captain DUQUESNE. Those animals associate with horses and cattle and various other animals, and are led all over the country. Many of them are just merely led at the end of a string—camels, giraffes, elephants, etc.—all over the country. So you see the machinery you already have in operation prevents disease coming in; and there is no disease in this country that has been brought in in that way so far as I know. I have read a good deal about the matter; and so far as I know (I may have overlooked some of the documents) there is no disease in this country now that has been imported by menagerie animals. Yet these menagerie animals walk all through New York State, from village to village, and the horses associate with them, and so on.

Doctor FARRINGTON. Since 1890 these animals have all been inspected and quarantined and examined before they have been allowed to be admitted. Of course in menageries and zoological parks they are kept separate, and do not mingle with the animals in general.

Captain DUQUESNE. Yes; but there were circuses before 1890, and they were pretty lax over that inspection. Yet there is no disease on record that they have brought in.

Mr. BROUSSARD. You have the machinery now for that inspection?

Doctor FARRINGTON. Yes, sir.

Mr. BROUSSARD. So that if this bill passes, you will use that machinery in so far as animals are being brought here by the Government?

Doctor FARRINGTON. That is it. I simply wanted to bring that fact to the attention of the committee.

Mr. CHAPMAN. I wanted to ask the captain if there is any disease that is peculiar to the hippopotamus?

Captain DUQUESNE. Not that have been found. Your department might find some; but Mr. Hornaday has never found any, up in New York. He is an expert in the matter of breeding them. In nine years he bred eight hippopotami. His female hippopotamus there ("Miss Murphy," they call her) bore eight, and he raised seven, and he is making money out of them. He is selling them to other zoos, and thus making them pay a considerable amount of revenue. The hippopotamus has to breed. She has to make love one season of the year, and naturally the result is a calf. It is just as easy to do as not; and so he sends them around and sells them.

The Doctor here was speaking of water buffalo in the Philippines. The water buffalo in the Philippines is absolutely different from the buffalo of Africa. They are not related to one another within the ordinary limits; so they can not be compared.

The CHAIRMAN. The African buffalo is a land animal, is it not?

Captain DUQUESNE. Yes; surely.

The CHAIRMAN. It is not necessary for it to find a mud puddle every afternoon?

Captain DUQUESNE. No; but they do find them. Our African buffalo will run around marshes and parts of the country where the ordinary domestic cattle will not go.

In my talk I did not suggest anything that would conflict in any way at all with the domestic animals, because you might as well have domestic animals as wild animals. So far you have only the domestic animals here; but there is a vast expanse of territory in this country that at present will produce nothing but frogs and rattlesnakes that can be inhabited by dozens and dozens of different species of African animals.

The CHAIRMAN. Are buffalo domesticated there?

Captain DUQUESNE. They can be domesticated. They have never had them domesticated, for the simple reason that they grow wild, and when you want some meat you go out and pot one. You send the daughter or the son out on his way to school, and give him a couple of cartridges and tell him to bring home some buffalo meat for the house and the Kaffirs. He brings in the best meat for the house, and the Kaffirs go out and cut their part off. So what is the use of taking the trouble of breeding them?

The CHAIRMAN. I thought perhaps they used them as beasts of burden, as the ox is used.

Captain DUQUESNE. As beasts of burden they use an imported animal with a hump, like the sacred cattle of India.

The CHAIRMAN. Is not the African buffalo used at all as a beast of burden in Africa?

Captain DUQUESNE. In German East Africa they cross them with ordinary cattle, and they ride them there. I have seen German cavalry going over the country on oxen. In fact, the postal department

of German East Africa is run in some places with camels and in other places with oxen.

If you could make an arrangement so that I could show you these beasts of burden, I have them all on a moving-picture film that I took down there. I can show you the donkeys and camels and oxen and human beings all acting as beasts of burden. I have pictures of a great number of these animals that I have spoken about, taken in their various habitats in the different countries where they live. Of course I have all these pictures on transparencies, and there is no use in trying to bring them up here to pass around. But all the animals I mention make their habitats where nothing else will live. Even in Africa different species make their habitats in different places from others. Some will go right out on the mountain side.

For instance, the wart hog could be easily introduced into this country. It is a wild animal and it is a splendid animal for keeping the undergrowth out of the forests—the undergrowth that strangles the forests. They keep that undergrowth down and let the air through.

I went up the side of one of the mountains there, where if it had not been for the wart hog tracks I would have had to hack my way at the rate of perhaps 3 or 4 feet a day through the vines and undergrowth; but as it was, I followed the wart-hog tracks. They make tracks everywhere; and they are used by all the other animals—lions, and leopards, and all that sort of thing. Even human beings follow those tracks. Where the undergrowth is very thick, they make tracks underneath the stuff. The wart hogs could be put into the swamps down there; and the wart hog is good food. Of course I am not a very good judge of good food, because I have eaten snake and crocodile; but I have lived in Washington, too, and I can make a comparison. [Laughter.]

The CHAIRMAN. You have given us a very interesting morning, Mr. Broussard.

Mr. BROUSSARD. I simply want to say that if the committee desires it, the captain would be very glad to show to the committee the pictures he has of all of these animals in their normal size. He would be very glad to do that, if it will add information to what we have said to the committee in regard to them.

Captain DUQUESNE. It will amuse you, also.

The CHAIRMAN. It is certainly very kind of you to offer it, I am sure; but I do not know of any arrangement that could be made. The difficulty would be in darkening any room sufficiently. All of these rooms are well lighted. How long will you be in the city?

Captain DUQUESNE. I do not know. It all depends on whether you are going to get those animals or not. I will come and tell you some more about it if you want me to.

(The committee thereupon adjourned.)

EXTENDING THE BENEFITS OF THE MORRILL ACTS TO THE DISTRICT OF COLUMBIA.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Washington, D. C., December 10, 1909.

The committee met at 10 o'clock a. m.

The chairman, Hon. Charles F. Scott, in the chair.

The CHAIRMAN. Gentlemen, the committee has been called together this morning to consider H. R. 12343, a bill to amend an act entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agricultural and mechanic arts, approved July 2, 1862, and acts supplementary thereto, so as to extend the benefits thereof to the District of Columbia."

Representative Boutell, of Illinois, the author of the bill, is present this morning, together with Mr. Justice Harlan and Doctor Harlan, Commissioner Macfarland, and Doctor Needham, and other gentlemen representing the District of Columbia and George Washington University, who have asked for a hearing on the bill, and I am sure the committee will be glad to listen to anything they have to say. I will ask Mr. Boutell, the author of the bill, to make whatever statement he desires, and to present the other gentlemen in the order in which he would like to have them heard.

STATEMENT OF HON. HENRY S. BOUTELL, OF ILLINOIS.

MR. BOUTELL. Mr. Chairman and gentlemen of the committee, the provisions of this bill are familiar to all of you, so I need not even take time now to read it. In brief, the object of the bill is to place the District of Columbia on an equal footing with the States and Territories of the United States in reference to the benefits contemplated by the Morrill Act.

I would like to say, in the first place, that this bill which I have introduced here, giving these benefits to the District of Columbia, and the original Morrill Act itself, are following out simply the well-planned ideas of our forefathers in reference to giving federal encouragement to education. It manifested itself in the very earliest days of the Republic. It shows itself in the ordinances of 1787 and down through our entire legislative history. There has been shown a clear disposition to give reasonable aid and encouragement to education throughout the country. The Morrill Act, as you know, provided that the proceeds from the sales of public lands should be divided among the colleges of the different States that would give instruction in agriculture and the mechanic arts. This division of these proceeds continued until the act was amended, making a

straight appropriation, giving a fixed amount of money. So the first thing to which I want to call attention is this:

Where the benefits came from a division of the proceeds of a sale of lands, every additional beneficiary, of course, would reduce to a certain extent the pro rata amount; in other words, if there was a total amount to be divided as it now would be by 49, each part would be less if it was to be divided by 50. That, however, has been entirely done away with by providing for a fixed amount of money under the Nelson amendment. That amount of money is now \$40,000, will be \$45,000 next year, and thereafter will be \$50,000.

There are three classes of persons or three special interests in this bill: First, the District of Columbia as a political entity; second, the George Washington University, which is made a beneficiary specifically under this act; and, third, is a class which has not yet been heard in the discussions of this bill, the class for which I particularly appear, and their interests are of the nature which impelled me to introduce this bill.

Officials of the George Washington University are here to speak for themselves. Of the universities doing work among the colored people in the District the George Washington University is the only one that could administer this fund. There are officials of the District here who are able to speak for themselves. I want now to speak for those whom we all represent and who have the largest interest in this bill and the work that will follow after it, and so far as I know who have not yet been heard in these discussions, either in the Senate or in the House. These are the people "back home" in our States.

In my own State of Illinois we have the Illinois State University. They get benefits under this provision of the law as it now stands. But from Illinois we have, I think, our full quota of heads of families residing here in the District of Columbia, engaged in the work of the National Government, beginning with the United States Senators and on downward. These people come here at small compensation from their home State, where their children could have had the benefit of the provisions of this act in their own university, and make their homes here.

I suppose we have now in the District of Columbia 30,000 heads of families from the different States in the Union where they are getting the provisions of the Morrill Act in their different institutions. These heads of families are receiving small salaries and are unable to send their children back home, but they are entitled here to the benefits of the best kind of an education contemplated in the legislation of the United States. To show my special interest in the matter, I would like to give a case in point. I have a boy myself, 19 years old, who has taken up engineering as the work he wants to follow. For two years—that is, his freshman and sophomore years—he attended our own state university, the University of Illinois, when, for reasons of health and other domestic reasons, we preferred to have him at home with us this winter, and he is attending George Washington University in the course of engineering. That same situation applies to hundreds and thousands of other families, and from every other State in the Union.

The State of Kansas, Mr. Chairman, has a benefit under this law, as it now stands, but how about the thousands of heads of families from Kansas who are here in the District of Columbia? Why should

they be excluded? The provisions of the law now go not only to all the States, but to Porto Rico and Hawaii. That is the proposition, gentlemen, in a nutshell. So far as I know, all the arguments are in favor of the passage of this bill—the policy of the National Government pursued from the earliest times, the fact that there is a university here fully equipped and ready to carry out the provisions of this bill, the fact that the District of Columbia will soon have a population exceeding half a million, and last and most important of all, that there is now and always will be 30,000 or more heads of families gathered from the different States in the Union who are entitled—and I use that word advisedly—while here performing the duties of government officials and employees, to the benefits of such appropriations and provisions as the National Government may make for educational purposes.

That, in brief, Mr. Chairman, is all I care to say at the present time. I know of no objection to this bill. There can be no objection based on the amount of money involved, because if the arguments that I have mentioned are valid arguments, then so long as there are 49 States and Territories getting the benefits of this act it would be simply unjust discrimination to bar out the District of Columbia. So I say I know of no objection whatever to the passage of this bill. Any objections which might be urged by other institutions, it seems to me, simply deserve that passing irritated attention that we would give to the proverbial dog in the manger. There are no valid objections to the favorable consideration of this measure, but all the reasons in history and the present condition of things lead us to consider it favorably.

Mr. Chairman, with your permission, I would like to suggest that Commissioner Macfarland, who is here representing the District as a political party, be now heard.

STATEMENT OF HON. H. B. F. MACFARLAND, COMMISSIONER OF THE DISTRICT OF COLUMBIA.

Commissioner MACFARLAND. Mr. Chairman and gentlemen of the committee, as I am due at this very hour at the House Committee on Appropriations, which is considering the District of Columbia appropriation bill, I shall be very brief and shall ask leave to then withdraw from the room.

I appear officially as president of the Board of Commissioners of the District of Columbia and also as chairman of a committee of citizens, representative in character, advocating the passage of this bill. To us it seems a simple act of justice. We can imagine no reason why the District of Columbia, with 340,000 American citizens, should be excluded from the benefits of this legislation. We here make our full contribution through the tariff and the internal-revenue taxes to the Treasury, and besides having maintained the national capital until 1878 alone, so far as its municipal affairs are concerned, and since 1878 having paid one-half the cost of its maintenance, we see no reason why Porto Rico and Hawaii, to say nothing of all the States and Territories of the Union, should have these benefits while the District of Columbia does not enjoy them. Our press, our civic organizations, our taxpayers, our citizens in general—in fact, the whole community—are in favor of this legislation. If

there is any opposition to it, it is without the District of Columbia, and we earnestly urge that your committee will report the measure favorably in order that it may pass at an early date.

As you are aware, a similar bill was passed unanimously by the Senate in the last Congress and reported favorably by this committee, and we feel that it is, as I said in the beginning, a simple act of justice.

Mr. BOUTELL. Mr. Chairman, I would suggest that Mr. Justice Harlan be given an opportunity to be heard.

STATEMENT OF MR. JUSTICE HARLAN, OF THE SUPREME COURT OF THE UNITED STATES.

Mr. Justice HARLAN. Mr. Chairman, I never read this bill until a moment ago, though I have heard of its substance. I am very sure that our distinguished friend from Illinois has not as yet done any greater act in his legislative career than to frame this bill, whether we look at the interests of the whole country or the interests of this District.

I do not know that any apology is needed for one in my judicial position appearing before a legislative committee about a matter of this sort. It involves no political or sectarian considerations, and, so far as I can see, it involves no question of law—certainly no question of law that will likely come before the court of which I am a member. I am here at the request of the president of that university simply from a sense of duty and for what I conceive to be for the best interests of this District and therefore of the country.

When I first heard of this measure I put to myself the question how it was possible that the Congress of the United States could be giving the benefits of this Morrill Act to the people of Hawaii and Porto Rico and yet denying it to the people of this District. What proportion of the people of Hawaii are of our kith and kin or that want to be, or that we want to be, either? What proportion of the people of Porto Rico are of our particular race? Is it possible for anybody to suggest a reason why the people of Porto Rico should have these advantages and the people of the District of Columbia denied them? The Porto Ricans are not yet citizens of the United States in the full sense of the word. We have not agreed they should be. If I were in Europe, standing under a monarchical form of government, I would say that the Porto Ricans are our "subjects"—a word I hate—and yet we are giving our "subjects" the benefit of this act and denying it to the people here, who are completely under our authority and are citizens of the United States. Porto Ricans are under the Constitution of the United States in a sense, but not in the full sense, according to the judicial decisions.

Congress can pass criminal laws and subject those people to punishment for crime without making them citizens of the United States. But every citizen of the District of Columbia is subject to exactly the same laws that apply to every part of the United States. I know there are some who think, or who did think at one time, that the people in this District were not entitled to the benefit of the Constitution of the United States; but I take pride in the fact that I had the honor of voicing the opinion of the Supreme Court of the United States some years ago in a case when that suggestion was made, and

our court unanimously said: "No; whatever guaranties of life, liberty, and property belong under the Constitution of the United States to any citizens of the United States in one of the States belong to the citizens of the District of Columbia." If the citizen of Illinois, for instance, on trial in the federal courts sitting in that State, is entitled to invoke certain clauses of the Constitution of the United States, a like citizen on trial in the District of Columbia can do the same. He can claim his right of trial by jury. He can claim he shall not be punished for any infamous crime except upon indictment or presentment of a grand jury. These people of the District of Columbia are subject to be drafted into the army of the United States in the case of war. They are subject to every duty that may be put upon citizens of the United States elsewhere, except that they can not vote. I shall not, however, enter upon that question.

In point of character, in point of patriotism, the people of the District of Columbia will compare with any people anywhere in the United States. I think I know them as well as I know any people. It so happens that on this very day thirty-two years ago—a long while ago—I took my seat upon the bench of the Supreme Court of the United States. [Applause.] During that whole time I have mingled with these people, old and young. I think I know them. I think I know what are their needs, what are their wants. The distinguished gentleman who first opened this discussion well referred to the fact of the number of people who are here for years often who are not citizens of the District, who are here of necessity, and to whom we owe a duty. If they were back in their own States, they would get the benefit of this Morrill Act there. Being here, why should they not get the benefit of it here? I speak with some knowledge of the proportion of young men who live elsewhere and those who are born and raised here and are here permanently. I am connected with George Washington University in another branch of it, the law, and I have been lecturing to law students on the subject of constitutional law for about twenty years, and I know that a large proportion of the classes that I have taught from year to year is composed of young men who after a while go back to their own homes, their old homes, and become connected with society there. That institution, then, is training young men who are here to go out into every part of the United States and take upon themselves the full responsibility of the duties of citizenship. It does seem to me that it is as little as the United States can do to place the people of this District on an equal footing with the inhabitants of Porto Rico and Hawaii. This District, it is true, is not an organized Territory of the United States like, for instance, New Mexico, yet it is in its real sense a Territory of the United States. New Mexico has a legislature of its own to care for its people. This District has no legislature except the Congress. Congress stands in the place of the legislative body that is to care for all the interests and wants of the people of this District, and they can only look to you.

I feel this interest in this matter because it is connected with the cause of education, national education. If our institutions are to last as long as we hope they will last, it will depend in large degree upon the extent to which we provide means of education for the people of the United States. The States take care of their own people immedi-

ately with their money and for their local purposes. Here is a fund and property belonging to the United States. How shall they use it? I am not complaining that the United States does this for the people of the organized Territories. They ought to do it. I am not complaining that they are doing it for Hawaii and Porto Rico, because we will always have those Territories. The Anglo-Saxon never takes his hand off land when he once gets it on. We will always have them, and our duty is to put them in the way of education, so they can eventually become citizens of the United States, and worthy to be citizens of the United States. Here is a part of the population of this country equal to any in the whole United States. I think I have seen a good many parts of this country, and I may say with great confidence that the population here in the District of Columbia compares favorably with the population in any part of the country.

Therefore, Mr. Chairman, having performed what was to me a pleasant duty, to come here and make these few suggestions in support of this scheme for the benefit not only of this District, but for the country, I thank you.

STATEMENT OF CHARLES W. NEEDHAM, PRESIDENT OF GEORGE WASHINGTON UNIVERSITY.

MR. BOUTELL. Mr. Chairman, this bill provides specifically that the fund shall be distributed by the George Washington University. That is simply because it is the only institution in the District of Columbia that is now giving instruction in agriculture and mechanic arts. The president of the university, Doctor Needham, is here, and I am very sure, Mr. Chairman, that you and the members of the committee would like to hear specifically the condition of the university and its ability to administer this fund, and to ask him such questions as you may desire.

Doctor NEEDHAM. Mr. Chairman, I shall confine myself entirely to the university and its work.

The university was organized in 1821, within a few years after the suggestion of President Washington that there should be a university in this District. President Madison and others expressed a hope that the Columbian College, as it was then named, should become that university or college. Many public men at that time expressed this same hope, that it would become the college of the District. It continued under that control down to 1872, when Mr. Corcoran gave a gift to the then college for the express purpose, as he said in his letter, of making it a university, and to be used for that purpose.

I came to the university first as dean of the law school in 1898, and afterwards as president in 1902. It then had, speaking generally, a college, a law school, and a medical and dental school. That work was being carried on by the fees of the students and such money as was received from its small endowment and such money as was given to it and as was realized upon property and assets that were free. Beyond this matter of receipts from fees, there was a deficit, as there is in every institution and which is not peculiar to our institution—a deficit of from \$15,000 to \$20,000 per annum. That had to be provided for by the trustees. I took up the work and endeavored to familiarize myself with the conditions in the District and the requirements of the District.

As we had a college established, the matter of putting in a college of engineering and a teachers' college for the education of teachers in the District, and a division of architecture, in order to teach men that profession and science, involved simply the expense of putting in the technical courses. The cultural courses were already provided in the college. Having been approached by many people and young men desiring this line of education in the District, I took up the matter with such men as Dr. Andrew D. White and others who had established colleges of engineering to ascertain what they thought of the desirability of establishing such a college in the District of Columbia. It was their unanimous and most hearty conclusion that there was no place in the country open at that time that gave such promise for a good engineering and mechanic arts school as the District of Columbia, owing to the number of students already here and in the immediate vicinity that had no opportunity for such education. I presented the matter to our board of trustees and said it would involve an extra expense to put in this line of education, but that I believed if it was demonstrated by the number of students that attended it that it was needed here it would receive support either from Congress or from private funds. That work, therefore, was put in. We established the college.

The CHAIRMAN. At about what time?

Doctor NEEDHAM. Three years ago. Four years ago the ordinance was passed, and we started the work and have carried it on as best we could ever since.

The work is recognized now by other institutions doing the same work, where our students go out, as some of them do. Quite a number of them went out in the last year in order to get laboratory facilities, which we are unable with our present funds to give them. They went to other institutions, engineering colleges, and received full credit for the work done here. We are hoping to put in the necessary laboratories—and I shall speak of that in a moment—to do the entire work.

The expense at the present time, with our present faculty, amounts to \$41,037, according to our present budget. We are carrying on our work with a deficit over our income from tuition fees and a small endowment of \$113,000, this deficit amounting to \$55,000, which we have to provide for this year. Forty-one thousand and thirty-seven dollars of that is for this mechanic-arts work, leaving the deficit beyond that just about what it was when I came with the university. In other words, if we were to drop this work we should be just where we were before, so far as our financial standing is concerned.

The question therefore presents itself, Shall we carry on this work in the District? That involves the question, Does the District need it?

As I have stated in a brief paper which I have sent to members of the committee, there are two classes of students here. They are just the same in quality of mind, but we speak of them as different classes because the first class is unable to attend the work during the whole day, while the second class can only attend part of the time. The first class consists of sons and daughters of those who reside in the District of Columbia. Our registration last year was 1,500. This year we have already registered 1,309 up to the present time, and will register during the second semester from 100 to 150 more;

so our registration is, or will be, practically what it was last year. Of that number, one-third, 573 last year, had no other residence than the District of Columbia; that is to say, their fathers had residences in the States, but they were children born here or brought here at an early age, and they had no residence and can establish no residence in the States. That class of students is dependent almost entirely—certainly all but 10 per cent of them are dependent entirely—upon the advantages in the District of Columbia for education. Their fathers are receiving comparatively small salaries, and they can not afford \$1,000 a year to send the boy to college, especially if they have more than one in the family. They are dependent entirely upon the facilities which are offered in the District of Columbia. Therefore, I say they belong to the District of Columbia. They must be educated here or they can not be educated anywhere.

Look for a moment at that class. If they can not get an education in this line of work, the whole field of industry—the whole industrial field which offers the greatest opportunities to men of character and ability to-day for employment, the greatest number of places—is entirely closed to them, and they have to go out into life to be stenographers and typewriters and salesmen, and work that any man with a fair education can do.

The question before you is: Shall this body of students, now between 500 and 600 in this institution, be continued in this work that will enable them to go out into the industries of the United States and maintain themselves along these lines or not? No institution can do this. We can not maintain it without help. No institution can do so. It has to be maintained by somebody. If we get this appropriation this year, it is \$40,000, just what we have to expend in this behalf. We have, then, to take care of our college of arts, and we can do it. That deficiency we will take care of without any trouble, but this expense must be taken care of or else the work must go down.

The other body of students consists of those who have been referred to so ably by Mr. Boutell, men who are here part of the time. They come here largely to serve the Government, or serve Members of Congress or executive officers as secretaries. There are in this District to-day from 2,500 to 3,000 students of that kind. We have 1,000 of them in our institution. There are scattered through the other institutions or profession schools of the District from 1,500 to 2,000 more; I can not give the exact number. These men are here to fit themselves for better service in the professions. They are all studying the professions, as a rule. There are some of them who come in as did Mr. Boutell's son. We have probably of that class in the engineering and mechanic arts and in architecture and in the teachers' college 200 to 250. These men must get their education here. They can get it nowhere else. A gentleman in New York who distributes great charities and benevolences for educational work said to me, "Why do they not go over to Johns Hopkins? Why do they not go to the University of Virginia? They are near you. Why do they not go there?" They can not go there. It is a physical impossibility. They are here, as you gentlemen know, to do their work every day. They have part of their time off, perhaps one-third of the time, and their nights for study.

These men will give their time—and they are a splendid class of students. I wish you gentlemen could come into the university and

go into the class rooms and look into the faces of those young men. I will put them up against Harvard or Yale or any university in this country. There is no better class of students to be found. The gentleman who was called to teach economics in our institution this year came from Cornell. I said to him the other day, "How do you find your classes?" He said, "The best classes I have ever had in my life; the most enthusiastic, most serious-minded men I have ever had anywhere." He taught in Cornell and in the University of Chicago. That has been the testimony of men who have come to us from other institutions. Our students are serious-minded, earnest men, desiring to get their education, and working hard for it. If they get it at all, they have got to get it here. They can not go out from the District of Columbia to get it. The question is, Shall we give them a good education or shall we give them simply a superficial education? What will you do for these young men, these 3,000 young men of the District of Columbia, who are here and can not get away? What will you do for the 11,000 children of these citizens who are here and can not get away? Will you give them a good education and fit them for a good life in the industrial and commercial world and in the professional world? If so, then we must have the aid which we ask.

When I came to the university there were engaged there, giving their full time, 11 professors. To-day we have over 40 giving their entire time as trained teachers to the education of these men. We come here to you, it is the only place we can come, to get this aid. Two gentlemen have, at different times during the last year, one definitely and the other in a conditional way, offered to give us buildings if we had a site. We can get a building for the mechanic arts within a year, but these men will not do this until they know that that work is to be sustained, until they know it will be sustained. If you give us the benefit of this, it will be known this work is to be sustained. It would just about pay for the technical work, but it will not pay for all the cultural work which is carried on in the college of liberal arts. That will not be paid for and can not be paid for out of this fund. We have to maintain that ourselves. This appropriation will just about pay for the technical courses and for the courses in the sciences which are provided for in the act expressly. If these gentlemen can know that this work is to be provided for and that it will not go down, we can easily get a building for this work. We are now carrying it on in rented houses.

So I come here and ask that you pass this bill and that this university may be designated to receive the fund. We are the only university doing this work in the city for white students. Howard University is carrying on work of this character for colored students, and Congress appropriates not only all the money necessary for that work, but all the money necessary for the entire work of Howard University. I may say also that you are appropriating all the funds necessary to carry on the work for the deaf and dumb in this District, a splendid work. I only ask that the normal white people in the District of Columbia shall have the same consideration from Congress that these others have—not the same, either, Mr. Chairman, because in their cases you are providing all the expenses, as you ought to do. We ask simply that you give us the benefit of the Morrill Act and provide for the engineering and mechanic arts courses.

One other question has arisen with reference to the agricultural subjects. We are teaching a great many subjects included in the agricultural colleges. You will see the act itself says "relating to." Doctor Harlan will refer more particularly to this, but I want to say we are carrying on very much of the work that is included in the curriculum of every agricultural college; that is, a college giving itself wholly to agriculture. It has been suggested to me by the Department of Agriculture that if this money is given to us we should put in a general course in agronomy and one in horticulture for students of the District. Of course we do not intend to carry on experimental work. That is already being done by the Agricultural Department in this District upon a farm near by. But with the courses we are already carrying on if we had a course in agronomy, the science of agriculture, and a course in horticulture we could give our students here in the District of Columbia who may desire to pursue that work all they would require up to the last year in agriculture, and in the last year they would have the choice either to go into the agricultural experimental work that is being carried on here or to go to adjoining States, where there are agricultural colleges which do experimental work.

It has been the policy since this act was passed, in 1862, to use the facilities existing in every State and Territory to carry on this work. At one time Brown University and Yale University received the benefits under the direction of the State. Where the States have established agricultural colleges or mechanic arts colleges they have taken it from the others and given it to these state-maintained institutions, and very properly, of course. If this District should maintain a state university of its own, carrying on this work, it will then be perfectly proper for Congress to take it from us and give it to such an institution. But I really hope that the time will never come that any other institution than this one shall stand for the District.

There has been much said about a national university doing work of a post-graduate character only; for the higher degrees, master of arts and doctor of philosophy, such a university should exist. Bills are pending in Congress for such a university. We have no aspiration to become such a university. Our mission is to the District of Columbia, to carry out the intent and desire of President Washington, that the District of Columbia should for itself have an institution serving it. That is our ambition and our only ambition. If the time shall ever come when the Congress of the United States shall establish a post-graduate university of the United States, to carry on the higher work, the graduate work only, then George Washington will stand with Harvard and Yale and the University of Illinois and the University of Michigan and the University of Kansas and all the great state universities, under that post-graduate university, we standing for the District of Columbia.

MR. BOUTELL. Mr. Chairman, although Doctor Needham and Mr. Justice Harlan are both connected in their respective capacities with the George Washington University, I want to call special attention to the fact that as this hearing proceeds there is something a great deal wider in the scope and principle involved in this measure than the mere assistance of this institution.

I wish to express my appreciation and my gratitude, which I think all the members of the committee share, to Mr. Justice Harlan for

coming here and calling attention, as he so ably did, to the wide national scope of this measure, affecting, as I tried to point out, not only the local interests here, but all the States and the generations yet unborn, whose people are to come here.

I verily believe, on this auspicious anniversary, Mr. Justice Harlan, it is eminently fitting and proper to say that you probably never performed a more commendable act than you have performed here to-day in advocating this measure. I hope that thirty-two years hence you will come back and see 2,000 young men and women enjoying the benefits that this appropriation will bring to this institution.

STATEMENT OF DR. RICHARD D. HARLAN, ON BEHALF OF THE GEORGE WASHINGTON UNIVERSITY.

MR. BOUTELL. Mr. Chairman, Dr. Richard Harlan, the special representative of the university that is named as the beneficiary under this act, is present this morning. There are some features not yet touched upon which we would like to have him discuss at this time.

DOCTOR HARLAN. Mr. Chairman and gentlemen of the committee, there are two questions involved in this bill. They might have been put into two separate bills, the first bill containing what is now the first section of the pending bill, admitting the District, as such, to participation in this fund. If that bill were passed, then a second bill might have been introduced dealing with the question of how that money should be used. I think it is vital to a fair decision of these questions that a clear line of demarcation be made between these two questions.

In deciding the first question, you gentlemen of the committee represent the Congress of the United States; and it is for the Congress of the United States to determine whether it shall grant to the District of Columbia, as such, the same appropriation which it gives to the States and the regular Territories and to Hawaii and Porto Rico. But when it comes to the second question, namely, as to how the District should use this money if you give it to the District, then I submit, gentlemen, that you are here not so much as a committee representing the Congress of the United States as a committee representing the legislature of the District of Columbia, and that, in deciding that second question, as to how that fund should be used, the only consideration should be, What is best and most feasible for the District of Columbia?

With reference to the first question, namely, the right of the District to this annual appropriation, let me remind you of the fact that when the first Morrill Act was passed the main idea discussed was the colleges of agriculture, and, as no one thought and no one now supposes that the District needed or needs a college of agriculture, in the technical sense of the word, there was no one to suggest, when the bill was drawn donating lands to the several States and Territories, that the District of Columbia should be included.

MR. CHAIRMAN, let me remind you of the fact that in all the legislation for federal aid to education the District of Columbia has been left out entirely. Congress first gave, in round numbers, for the public schools of the country nearly 100,000,000 acres of the public lands that belonged to the whole people of this nation. The District of Columbia was not included. We are now paying the penalty.

We have no school fund growing out of these lands to lessen our taxes. We claim no lands at this late date; but remember that Congress did not give us any land for that purpose—the common schools.

Later on Congress gave to a great many States—I have not been able to find out whether you gave it to all—from 40,000 to 90,000 acres of land for state universities, but you never gave an acre of land to create a university for the District of Columbia. We make no claim for that, but we want you to remember that we were left out in that second land grant for educational purposes.

Then in 1862 you divided 10,000,000 acres of land among these colleges for agricultural and mechanic arts, and again the District of Columbia was not included. We make no claim for that land for that purpose, but we do not want you to forget that we were left out in that third great grant of land.

That omission in three critical instances only strengthens tenfold our moral claim to our share of this annual appropriation of money, especially since it comes out of the general taxes, of which we pay our quota.

If I may be permitted in this presence to bring the argument home, very much home to this committee, the citizens of the District are to-day helping to support the following institutions—and you will see why I mention these:

The Vermont University and State College; Cornell University, in New York; the Pennsylvania State College; Virginia Agricultural and Mechanic College; Clemson Agricultural College of South Carolina; Georgia College of Agriculture; Ohio Agricultural College; Illinois University; Missouri University; Iowa Agricultural and Mechanic College; Kansas Agricultural College; North Dakota Agricultural College; Utah Agricultural College; Oregon Agricultural College; Texas Agricultural and Mechanic College; and the New Mexico College of Agriculture and Mechanic Arts. These are the institutions represented by the 18 members of this committee.

I appeal to your sense of fair play. When I bought this suit of clothes, I paid more than if it had been made of domestic cloth; and I helped thereby to support every institution that is represented here under these Morrill acts. It is time, it seems to me, that some of your money should go to the support of a college of the mechanic arts for the District of Columbia.

A gentleman from one of the Western States, in response to a letter I had the privilege of writing on this subject, when I spoke of the great boon which this act would be to the young men of the District, wrote back and said:

Yes; of course it will be a good thing for the young men of Washington City, but it would be a very good thing for the young men of Detroit and Seattle and Jersey City if they had a college of mechanic arts.

He seemed to think that answered my argument. If Detroit was not able to induce the State of Michigan to locate its college at Detroit instead of Lansing, that is too bad for Detroit. So with Seattle. So with Jersey City. Jersey City should not complain because New Jersey saw fit to locate its college at New Brunswick.

But the point is that the District of Columbia has a moral right or, if you will pardon the pun, we are morally and Morrillly entitled to this appropriation, because the evident intent of the Morrill Act was to distribute this money to each separate political community.

Detroit, Seattle, and Jersey City are each one of many cities in their respective States; but the District of Columbia is a part of no one State, but is a separate political community. Size makes no difference. You give as much to Delaware as to Texas. When you come to size, we measure up pretty well. If you will look at the figures given in my brief, you will see that we had more people here in 1900 than in six or seven of the States and Territories, and nearly as many as in three or four others. Although some States are growing faster than we are, we are still by no means at the bottom of the list. Size has nothing to do with it. We are a separate political entity.

There is one feature of this argument which I should like to emphasize before I leave this first point, namely, the right of the District, as such, to this appropriation.

If I were still a resident of—I was going to say my native State of Kentucky, but I was not born in my native State. I have always quarreled with my dear mother because she found it more convenient for me to be born across the river. But I always speak of it as my native State, and I got back to it in three weeks' time. I did the best I could, I assure you.

If I were living to-day in my native State of Kentucky, I would rejoice as an American citizen at the prosperity of the University of Cincinnati; but if I saw things clearly and thought straight on the subject, I would rejoice for an additional reason at the prosperity of a strong university in the District of Columbia. Why? I am interested, as an American citizen, in every State having a good university, but I am especially interested in making it possible to find every needful form of education at the national capital. Why? Because even if I still lived in Kentucky and had never gone out of Kentucky, yet, if I thought clearly and thought straight on this subject, I would realize that for the benefit of the nation it was of supreme importance to the whole country that the city of Washington have every needful educational advantage. Our public servants are here doing the work of government, and if we can give them everything they need for the education of their children it only makes it that much easier to get and keep the services of the very best class of men. I venture the assertion that, taken in proportion to the population here, there are more bright young men, less business opportunities, and fewer collegiate advantages of a practical character than in any large city in the Union. I say it is a bad thing for us as Americans that our capital should not be fully equipped in these regards.

The second point is, How shall this District's share be used? The Morrill Act provided this fund should go to the endowment, support, and maintenance of at least one college that would teach these subjects. The actual administration of the acts bears out the liberal construction. It was left with the separate States to settle that matter as a local and practical question. In Kentucky, a private institution was utilized for this purpose until 1878, when the Kentucky Agricultural and Mechanical College was organized, and I believe the Kentucky University, as it was then called, then became incorporated as the Kentucky State University. Until 1892 Rhode Island utilized the services of Brown University, while Connecticut utilized the services of Yale until 1893, when the State established a state college of agriculture and the mechanic arts.

There are still three nonstate institutions now administering the Morrill fund for their respective States: New York utilizing the services of Cornell; New Jersey, of Rutgers; and Massachusetts, the services of the Massachusetts Institute of Technology. These institutions are sometimes spoken of as private institutions; but whatever they may have been before, they certainly became public institutions in every practical sense the moment the state legislatures designated those three institutions as the special servants of their respective States. For, very properly, the legislatures of those three States provided that certain state officials should go on their boards, and that those institutions should report to the state legislature; so that they became public servants, public institutions in every reasonable and necessary sense of the phrase.

Similarly, in this bill the legislature for the District of Columbia, in approving this measure, very properly include that fourth section of the Gallinger-Boutell amendment, because if the George Washington University uses this money it is right there should be ex officio members of the board of trustees. Hence, it is provided that the two cabinet officers dealing with these questions, the Secretaries of the Interior and of Agriculture, and the Secretary of Commerce and Labor, and the federal Commissioner of Education shall be ex officio members of the board of trustees, and that the institution shall be required to report to Congress. So we would become a public institution, under your supervision, under every reasonable control. Moreover, we can not get the money until we do the work provided for in the acts.

Let me remind you of the fact that if, by the first section of the act, the District as such is given this money the district legislature has exactly the same alternative before it which the legislature of New Jersey now has and has had for thirty years. You can either go to the expense of creating a district-government college of agriculture and the mechanic arts, or you can utilize the services of an existing institution. Bear in mind that the Interior Department with the Treasury Department—because the Comptroller of the Currency has to authorize the payment of this money—for thirty years have interpreted the Morrill Acts as giving the liberty to the three States mentioned to utilize the services of an existing institution. With the tacit consent of Congress for thirty years you have permitted these institutions to be utilized for that service. So, in adopting the second and third sections of the Gallinger-Boutell amendment, you would simply be following the precedent which the Congress of the United States has permitted for thirty years in the case of New York, New Jersey, and Massachusetts.

I will call your special attention to the letters which you will find on pages 7 and 8 of my brief, from presidents of the land-grant colleges. When we heard opposition would be made to this bill in the interest of a national university project, we wrote to these men. They were all personal strangers to me and to Doctor Needham, so far as I know. They had been appealed to in the interests of their own pet project. We, therefore, were dealing at long range with a jury that presumably was prejudiced. We dealt with them simply with printed briefs and typewritten arguments, and these nine men wrote and expressed their approbation—a striking corroborative evidence in favor of this bill.

As to the qualifications of George Washington University to do this work, I will speak briefly. Once in a while it is said, "You are not a college of agriculture." I reply, "No, we are not a college of agriculture; but the Morrill acts do not require that institutions receiving this aid should be colleges of agriculture."

I would call your attention to the fact that in the Morrill Act agriculture and mechanic arts are on an absolute equality. I would also call your attention to the fact that it speaks of educating the industrial classes in the several pursuits and professions in life. The use of the plurals shows the wide scope of these acts, and Senator Morrill's own interpretation is still more determining when he speaks of these institutions as being "colleges for the advancement for general scientific and industrial education." He quarreled with the indexer of 1862 for indexing that bill under "agricultural colleges," and said they were not agricultural colleges but "land-grant colleges" for the liberal and practical education of the industrial classes in the several pursuits and professions in life.

In the next place, the District does not need a college of agriculture. You would not require us to give to the District what it does not want. In the actual administration of the acts I would call your attention to the authoritative schedule on pages 6 and 7 of the brief issued by the Interior Department. I note that there are 9 subjects in agriculture and 43 subjects that are nonagricultural. Of these 9 subjects in agriculture the George Washington University already teaches veterinary medicine, and, as the president has stated, if the bill is passed we expect to introduce a general course in agronomy and one in horticulture. We have already crossed the frontier of the agricultural sciences proper by means of our veterinary college. Out of the 43 nonagricultural subjects we teach 31. That table shows the views of the Interior Department and how it interprets this act as not necessarily requiring us to be a college of agriculture.

The CHAIRMAN. Will you include in your statement just the branches that are scheduled by the Bureau of Education as properly belonging to a college of agriculture and mechanic arts, indicating the ones taught in your institution?

Doctor HARLAN. Yes. Of the mechanic arts proper I will mention in order the ones we do teach. Then I will mention the ones we do not teach. The ones we do teach are as follows: Mechanical engineering, civil engineering, electrical engineering, railway engineering, architecture, machine design, mechanical drawing, wireless telegraphy, and shop work. That is 9 of those subjects out of a total of 18. The ones we do not teach are irrigation engineering, mining engineering, marine engineering, experimental engineering, textile industry, ceramics, stenography, typewriting, and printing.

Of course the Bureau of Education does not require every institution of mechanic arts to teach all of these subjects, but they are the schedules which give the authorized subjects. Out of these 18 subjects we are already teaching 9.

You will notice the Morrill Act specifically requires or calls for education in the English language and the various branches of mathematical, physical, natural, and economic science. I am reading from the second Morrill Act. We teach all the 5 subjects called for in English. We teach mathematics and astronomy—2 out of 3 of

the subjects called for in mathematical sciences. We teach 13 out of 14 of the subjects called for in the natural and physical sciences, viz: Chemistry, physics, biology, botany, zoology, geology, mineralogy, metallurgy, physiology, bacteriology, pharmacy, physical geography, and meteorology—everything, in fact, except entomology. Out of 3 subjects under the head of “economic sciences” we teach political economy and commercial geography, omitting only domestic economy.

So that we are covering practically the entire field in the nonagricultural subjects that the law could require and in the agricultural line we are already teaching veterinary science and will teach 2 more agricultural subjects if this bill is passed.

I think I may, without any breach of confidence, describe a conversation which I had with the Hon. Champ Clark, and also one with the lamented Mr. De Armond, of Missouri. I went to see Mr. Clark with reference to this bill and this was the conversation:

I said, “Mr. Clark, I would like to call your attention to a bill extending the privileges of the Morrill acts to the District of Columbia. Of course, you know what the Morrill acts are.” He replied, “Yes, in a general way.” I was about to say something more, when, with that delightful smile of his beginning to wreath his countenance, he interrupted me by saying, “Mr. Harlan, the idea of establishing a college of agriculture in the District of Columbia makes me smile.” I said nothing, but listened until he finished. “Now,” said he, “if you would only develop a great school of technology, that would be a different thing.” I said, “Mr. Clark, that is just what this bill will enable us to do. We do not expect to be a college of agriculture, though we teach subjects related to agriculture, within the law, and generously within the law; but our main purpose is to develop here a school of technology that will be to the people of the District and this part of the South what the Massachusetts Institute of Technology is to Boston and Massachusetts.” He said, “If that is what it is, then I am with you, and you need not say anything more.”

I next went to see Mr. De Armond, and oddly enough almost the same conversation took place. So even well-informed Members of Congress are mistaken sometimes in supposing an institution receiving this appropriation must be an agricultural college. As soon as it is known what we really mean to attempt we find almost universally a different feeling toward this bill.

I want to call special attention to the table on the back of my brief. If the service that is rendered is fairly gauged by the number of people to whom we aimed to give this form of education, the George Washington University, even without federal aid, stands pretty well up on this list. Last year, if this bill had passed and we had been admitted into the company of colleges enjoying the benefits of this act, we would have been serving more people in the Morrill Act courses than were served the year before by 32 out of 49 institutions receiving aid. One very distinguished Member of the House told me yesterday that to him that table was all he cared to read of the brief, and that it was more than satisfactory to him.

Mr. Chairman, I want in conclusion to appeal to the committee along the line that was commented upon by the distinguished author of the House bill—the young men of the District of Columbia. The worst thing that could happen to a young man is to tempt him to go into one of the departments as a clerk. A salary of \$1,200 or

\$1,400 a year is a pretty good salary for a young man 18 or 19 years old, and it is difficult to make him drop it. We want to develop here, in connection with our university, a strong school of technology that can train some of these young men into mechanical and electrical and civil engineers and equip them so they can go into the States and make a career for themselves. I venture the assertion that on account of the peculiar character of the population of this District the \$50,000 (as would be appropriated after two years) that would be spent in the District if this bill passes will do more good on a larger scale throughout the country than the same amount spent in any State of the Union, because our young men come from and return to every State. Although I appear as the special representative of the university, I do feel from the bottom of my soul that my real clients are the young men of the District of Columbia, not only those now living, but the generations unborn.

**STATEMENT OF MR. JOHN JOY EDSON, REPRESENTING THE
CITIZENS' COMMITTEE OF THE DISTRICT OF COLUMBIA.**

Mr. BOUTELL. Mr. Chairman, I am admonished that this hearing should terminate in about fifteen minutes. There are three or four other gentlemen who will address themselves to other features of the bill than those already covered. I spoke, in opening, of one of the interests of the District of Columbia not only as a political entity, but of the permanent citizens of the District of Columbia. There are some of those citizens here to-day, speaking for their associates. I would like to call upon Mr. Edson, representing the Citizens' Committee of the District of Columbia.

Mr. EDSON. Mr. Chairman, some weeks ago there was a meeting held at the District building at which I was not present. All of the citizens of the District of Columbia were invited to be present to consider the subject and whether they should do all in their power to induce Congress to give the District of Columbia its share of this fund under the Morrill Act. I was named as the chairman of the committee to represent that meeting here.

As citizen laymen, in looking over this act and how it originated and has been carried out, we wonder how it is that the District of Columbia has been excepted from its benefits. Being here, totally in charge of the National Congress and Federal Government, it seems to us we should be particularly cared for or there should be even more solicitude on the part of Congress for our welfare. We have no voice in the Government in any way whatever, as you know; no vote. The National Legislature passes all of our laws of every character—health, police, taxation, and all those things. Our taxes are paid into the Treasury of the United States. There is not a citizen of Washington who has anything to say about how one dollar of that tax shall be used, from the purchase of a box of matches to the building of a schoolhouse. It seems to me that you, the honorable gentlemen who constitute this committee—as the committees in the Senate and House are virtually our board of aldermen and common council or our whole legislature—should when a matter of this kind comes before you, give it most serious consideration. If you will see it as I see it, and see it as I

have heard everyone who understands the subject express himself, it is hardly a debatable question as to merit and equity. Congress has for years given these other States and Territories these large sums of money, the benefits of which they have enjoyed, educating many thousands of children better than they otherwise would have been educated, and yet this large population of the District of Columbia has been unaided so far as the Morrill Act is concerned.

I wish to express on additional thought, one reason why I think you should take more than a usual interest in how this question is disposed of that we have brought to your attention. This is theoretically entirely for the interests of the children of Washington, but it can not be so. We educate the children of the federal officers, the children of the Members of Congress and Senators. The children of the Presidents of the United States attend our schools. It seems to me, in view of the fact that we are educating these children who go throughout the United States, it should receive your unusual attention. There is another thought I want to suggest, and that is it is a great advantage for the children of these officers and Members of Congress to attend our schools. I do not think you could attend a university or a school in the United States where you could acquire so great ability. They come here to the capital of the United States, the capital of the people, and they witness the science of government, legislative and executive and judicial, and the scientific branches of every kind which are here, and they have necessarily the benefits of them.

I am here speaking for the citizens. I have not heard a single citizen of Washington demur to this move. There might be some, but I have not heard them, and I hope you will give this matter a fair consideration and your approval.

STATEMENT OF MR. A. LISNER, REPRESENTING THE CHAMBER OF COMMERCE.

Mr. BOUTELL. In closing this hearing I will ask Mr. Lisner, representing the Washington Chamber of Commerce and Board of Trade, to say a few words.

Mr. LISNER. Mr. Chairman and gentlemen of the committee, I am here as a member of the chamber of commerce. The chamber of commerce stands for engendering and promoting progress in the District of Columbia. You have all heard of the good work the George Washington University has done here. It seems to be the sole aim and purpose of its management to raise the standard to equal that of any institution of its kind in the country. The sole drawback has been lack of large endowments, without which no university can get along without a deficit. In order to partially obviate this the university wants to avail itself of the benefit of the Morrill Act, an appropriation which the Government gives to one university in each State and Territory teaching agriculture and mechanic arts. It now asks the aid of the chamber of commerce, as well as the board of trade, that such a bill may be enacted at this session of Congress which will include within the benefits of that act the District of Columbia.

Gentlemen, we want such a university here. We certainly need it, for various reasons. In the first place, the George Washington

University is named after our greatest President. Secondly, there are a great many government clerks here with a college education themselves who would like to give their children the same opportunities. If we have such an institution here they can do it. If not, they will have to send them away to other States. The question is, Can they do it on account of the additional expense?

Thirdly, this being the capital of this great nation, we ought to have the best of everything. We should not only have the best schools, but the very best of everything. We therefore appeal to Congress that the benefit of the Morrill Act may be extended to the District of Columbia.

Mr. BOUTELL. Mr. Chairman, that will close the formal hearing, unless there are some inquiries the members of the committee wish to make. I shall be glad at any time to furnish any further information at the request of the chairman.

I do wish in closing this hearing to emphasize again the point of view which I take in reference to the matter, regardless of the interests of the citizens of the District of Columbia, regardless of the special claims of George Washington University, that the people we represent are interested in repairing this long-delayed act of justice. Doctor Harlan said, with a good deal of feeling, "This is an act of simple justice." It may be simple justice, Mr. Chairman, but I want to call your attention to the fact that it is by no means complete justice. The neglect occurred when the District of Columbia was not originally included in the provisions of the Nelson Act and the Morrill Act, and if we were going about it to do complete justice, which is something we seldom do in this world, it would be to figure out what the District of Columbia, as a political entity, is entitled to since the passage of this Morrill Act. That would be simple and complete justice, whether it went to the George Washington University or where it went. I want every member of this committee, if they will, to feel exactly as I do regarding the wishes of our constituents. I believe if we voted on this at home it would be a unanimous vote. Our people in Illinois want the men who come here from Illinois to have their sons and daughters given the same advantage of this legislation that those have who remain back in Illinois, and that is what this bill does, from my point of view. It repairs a long-delayed act of justice. I hope it will be done speedily.

I desire to thank you, Mr. Chairman and gentlemen of the committee, for your courteous attention and the long hearing you have granted.

Doctor Needham calls my attention to the fact that some of these gentlemen I invited here, Mr. Brown, representing the alumni association, and Mr. Woodward, and others of the board of trade, are present, but owing to the lateness of the hour I suggest that the hearing be closed.

The CHAIRMAN. Have any members of the committee any questions to ask?

Mr. McDERMOTT. What is the amount of the appropriation they are asking?

Mr. BOUTELL. It is fixed now at \$40,000, increasing \$5,000 a year until the maximum of \$50,000 is reached. It is the same as is given to all other States and Territories.

Mr. HOWELL, of Utah. My understanding is that under the law this has to be expended for experimental work in the different States. Is it the intention to give it to the George Washington University without requiring any experimental work?

Mr. BOUTELL. The act which you have in mind is a different act. This is an act including simply the appropriation of funds for a university or college that shall teach the agricultural and mechanic arts. The appropriation for experimental work is under a different act, which provides a different purpose, and is not asked for here.

The CHAIRMAN. I am sure the committee is under obligations to Mr. Boutell and the other gentlemen for the information they have furnished. What has been said here this morning, together with the very complete statement of the case which is in the hands of the committee in the shape of Doctor Harlan's brief, I am sure will enable the committee to give consideration to every phase of the subject. That is what the committee intends to do. We should be very glad to hear the other gentlemen who are here, if it seemed necessary and if our time would permit, but the ground has been so thoroughly covered that I am sure the committee feel they have all the information in their possession now that is necessary to a complete consideration of the subject.

(Thereupon, at 11.30 o'clock a. m., the committee went into executive session.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Friday, February 25, 1910.

The committee met at 11.10 o'clock a. m., Hon. Charles F. Scott (chairman) presiding.

The CHAIRMAN. The committee has met this morning pursuant to an order made some days ago at the request of President James, of the Illinois State University, for a hearing on H. R. 12333, a bill which is commonly known as the George Washington University bill, the purpose of which is to amend the Morrill Act and amendments thereto in such a way as to extend the benefits of those acts to the District of Columbia. President James is here and has requested that he be allowed to make his statement without interruption, saying that when he has completed it he will be glad to yield for questions from the committee or from others. If you are ready, President James, you may proceed.

STATEMENT OF EDMUND J. JAMES, PRESIDENT OF THE UNIVERSITY OF ILLINOIS.

Mr. JAMES. Mr. Chairman and gentlemen of the committee, I appear before you this morning first of all to present a petition against the passage of House bill No. 12333, now before this committee for consideration. This bill proposes to appropriate to the District of Columbia the various sums of money now granted to the different States and Territories under the so-called Morrill Land Grant Acts and their sequels, a proposition to which so far as I am aware nobody objects.

It proposes further to utilize the George Washington University, a private institution in the District of Columbia, as an agent for the

expenditure of these funds, a proposition to which the vast majority of the friends of public education throughout the nation, North, South, East, and West are, in our opinion vigorously opposed.

The present petition, dated February, 1910, is signed by the presidents of 36 state universities, representing 34 different States of the Union. It is signed, furthermore, by the presidents of 16 of the independent colleges for agriculture and mechanic arts, and by 97 presidents of public state normal schools in every section of the Union.

These are men who, by reason of their careful study of American educational history and by their long experience in the administration of public education in all parts of the country, have become fully aware of the great danger to the interests of public and private education alike involved in the granting of public money to private institutions.

This same petition has been indorsed by the committee on legislative action of the Massachusetts State Teachers' Association, by a unanimous vote of the State Teachers' Association of Illinois, and by a similar vote of the Southwestern Teachers' Association of Wisconsin; that is, by all the teachers' associations of importance which have met since this bill was introduced into the House of Representatives and have had their attention called to the matter. I have no doubt their example will be followed by every teachers' association in the country. You have individually, doubtless, heard from some of your own constituents in regard to the matter, as the interest in the subject is growing rather than diminishing.

The attempt has been made in some quarters to create the impression that I am the only person in the country opposed to this bill, and that somehow or other a few additional malcontents and sore-heads who, for reasons of their own, desire to injure George Washington University, have grouped themselves about me and are using me for that purpose.

I beg to say that I am appearing here to-day primarily as the chairman of the committee on legislative action of the National Association of State Universities. The other members of that committee are, President George E. McLean, of the University of Iowa; Chancellor Frank Strong, of the University of Kansas, and President John W. Abercrombie, of the University of Alabama. Owing to illness or legislative complications at home, no one of these gentlemen is able to be present, but they have authorized me to speak for them. We are, however, fortunate in having present with us President Brown Ayers, of the University of Tennessee, who is for the present year the president of the National Association of State Universities, and also president W. O. Thompson, of the Ohio State University, an ex-president of the association and chairman of the executive committee of the Association of American Agricultural Colleges and Experiment Stations.

You will note, moreover, that the names of practically all of the state university presidents are appended to this petition. President Wheeler, of California, who is absent in Europe, could not be reached, and consequently his name is not appended; but his views on this bill are well known, he having characterized it as no less than a real menace to the interests of American education.

Now, gentlemen, why are we opposed to this bill, and why are we so earnestly concerned about it? First of all, I may say that it is not from any opposition to private institutions as such. I presume my own experience has been much like that of many of my colleagues. I owe an unspeakable debt of gratitude myself to private institutions. My college education was obtained at Northwestern and Harvard universities, two of the greatest private institutions of this or any other country. Most of my teaching has been done in private institutions, and I was, for four years, president of Northwestern University. I have never ceased to be thankful to these institutions and the munificent benefactors who through the centuries have made their great social services possible. I do not see, for my part, how the educational welfare of this country could have been secured had it not been for the work of these private institutions; nor do I see how our educational advance can be maintained and quickened in the future except by their continued cooperation. But, gentlemen, our educational history has amply demonstrated that to the proper development of our higher education the cooperation of the state—that is, the public authority—is also necessary; and further, that the policy of granting aid to private institutions from the Public Treasury is a most serious obstacle to the wise development of this department of public administration.

Again, gentlemen, we are opposed to this bill not because of any opposition to the District of Columbia or its interests. The money given to the District under this bill would not diminish by one dollar the money which comes to any of our institutions, and therefore we should not lose by it, in a financial sense, a single cent. Besides, many of these universities do not profit by the land-grant acts of 1862 and the following years at all, and can not therefore by any construction be accused of opposing this bill from monetary considerations. It is true that the great and wealthy States like New York, Ohio, Illinois, and Indiana do pay into this fund through their taxes more than they receive back in appropriations under the Morrill acts, and so would contribute heavily toward the new appropriations to the District. But I never heard any educator or other taxpayer oppose these grants on that ground. We are all quite willing, so far as I know, to see larger relative sums going to Louisiana and Kentucky and Delaware and Oklahoma and the District than to Massachusetts or New York or Illinois. But we are not willing that the Federal Government should take the money from us and give it to a private institution. We think we are entitled to ask that if you assign this money to be spent under your jurisdiction for public purposes, you shall do it through public and not private agents, through people responsible under public supervision and not to themselves alone.

Gentlemen, if you will pardon a personal word of explanation, I have naturally personally been much interested in the plans that have been worked out for the enlargement and prosperity of George Washington University. Individually I have done what I could, not only here but elsewhere, to forward those large plans, and I have said to the authorities of that institution that I believed those plans based upon the proposition of support by private individuals, that private individuals would give the money to carry them out, were good plans. I have also said that the instant they departed from the principle of establishing this institution upon the basis of a private benefaction

and attempted to get a grant from the Public Treasury, I should oppose it by every means in my power. It is a matter of great regret to us that we are forced to what may seem unfriendly criticism of a worthy enterprise, but we are forced into it by its own, as we conceive it, improper request, and the public welfare we think requires plain speaking.

We are not opposing George Washington University, but we are opposing the proposition to grant a federal subsidy to a private institution.

One other remark by way of preface. The argument that the George Washington University is a public and not a private institution because, though under private control, it does a public service, is such a specious plea that it should mislead no one. The same thing is true of every church in the country. Every church in the United States does, or at any rate, is intended to do, a valuable and important public service; but under our laws it is none the less a private, not a public, institution, and so indeed is every school under private control, even though it also may be doing a valuable and important social service. There are more than a thousand private schools and colleges in the United States which, from this point of view, have equally good claims for support from the Public Treasury as the George Washington University itself.

Gentlemen, we are opposing this proposition to grant public money to the support of a private institution because we have seen in our own practical experience the evil effects of such a policy upon the interests of public and private education alike.

The men whose names are appended to this petition represent the administration of probably twenty millions of dollars for the purposes of public education. They are responsible parties. They act and speak under a sense of their responsibility as the representatives of these great institutions to the people who have placed them there.

In the first place, a private institution which once obtains public aid comes to look upon this source of revenue as an increasingly important element in its financial policy. Instead of devoting its attention, as it should, to the increase of its funds from private benefactors, it gives its attention to the manipulation of city councils, state legislatures, and even the National Congress. The probable results of such a policy I need not describe to you. Wherever the interests at stake have become large, they have affected unfavorably the educational policy of the institution and the community as well as the purity and directness of legislation.

We have had a good illustration of a part of these tendencies in this very case. If the friends of George Washington University had given to a personal canvas among the wealthy men of this District the time and attention they have devoted to pushing this bill through Congress, they might have easily realized a principal sum which would have yielded for all time to come an income from interest equal to the proposed appropriation.

In the second place, if you give such a grant as is here proposed to one institution you will be compelled to give it to others also. When the city of New York was face to face years ago with the necessity of doing something more effective for popular education, it was proposed to give a grant from the public treasury to the managers of a school in connection with a Baptist orphanage, on the

ground that this school was already doing the work proposed, and all that was necessary to accomplish the end desired was to enable it to enlarge its work. This was accordingly done. The Methodists next came forward with a similar proposition, which had, of course, to be accepted. Then the Catholics urged that they had just as good a right to the public grant, as indeed they had and everybody admitted. It now became evident that this whole policy was leading to an impossible condition. I may say that the same thing was true in Philadelphia and Baltimore at the same time. Those cities passed through exactly the same experience as the city of New York in their attempt to develop a sound system of public education. It became evident now, I say, that this policy was leading to an impossible condition, and if the real interests of public education were to be served a complete reversal of tendencies and actions would be necessary. In the meantime much valuable effort had been lost and much money wasted.

You have an almost identical situation here in the City of Washington. George Washington University is now proposing to take the public grant on the ground that it is doing the work for which such grants are made. But the Catholic University of America is also doing this identical work, all of it, and perhaps more than the George Washington University itself, in spite of the assertion of the George Washington authorities to the contrary. By what right can you give the grant to George Washington University and refuse to give it to the Catholic University?

Georgetown University is doing from one-half to three-quarters of the work which George Washington University is doing, and to the expense of which it proposes to devote these funds. Georgetown can easily add the one-half or one-quarter more work necessary to qualify it to receive its full share of the grant. Can you deny it to them, after giving it to the George Washington University? The Methodist University, not yet opened, has a fine plant, and could easily open for work, if it could count on getting its share of these same funds. Do you suppose that the managers of these institutions do not realize how impossible it would be for you or your successors to refuse them what you have given to their sister institutions?

Gentlemen, we have had conditions more or less similar at one time or another to these in many States of the Union; conditions which delayed in many cases for years or for a generation the reasonable development of a public educational system. We are opposed to this grant of public money to a private institution, furthermore, because it thus becomes to the interest of the private institution to oppose the proper development of public education. It erects a bulwark and mans it with defenders against all progress of public education. Suppose you make this grant to the George Washington University, and you or your successors should become convinced that it was unwise and should wish to withdraw it altogether, or give it to some other institution? Do you suppose George Washington University would stand idly by and see this money taken from it? And a law may be defeated in its enactment in any one of the steps that must be taken, either in the House or the Senate or with the President. Would George Washington University stand idly by and see this money taken away? Would it not put forth ten times the energy to hold the appropriation which it is exerting to get it? Would it

not be ten times as easy to hold it—that is, to prevent the passage of a law taking it away—as it is to get a law giving it the appropriation? Would it not be helped to hold the appropriation by the very fund which you will give it, if this bill passes? The minute this bill should be signed by the President, that instant it would become to the interest of George Washington University to oppose any and all changes in the educational system of the District, no matter how desirable they might be, which could possibly threaten its possession of these funds, and thus a strong injurious influence would be created by this very act. We have seen the same thing done in other States and in other cities. We have seen the evil effects of this policy in many States. Even the hope, gentlemen, that such grants might be made, has delayed the proper developement of public education for an indefinite period.

You will pardon me if I give you a bit of educational history from my own State. Illinois was admitted to the Union in the year 1818. Congress had given to it in common with the other States of the Northwest Territory certain sections of land for the endowment of a higher seminary of learning. Owing to many circumstances, but among others to the opposition of private educational interests, it was found impossible to organize this higher institution of learning upon the basis of this federal land grant, although at that time there were no colleges of higher rank within the limits of the State. After certain private colleges had been established, the idea struck some of their supporters that the proceeds of this federal grant ought to be divided among the private colleges and not used for the establishment of a public institution of learning. These interests were strong enough to delay for many years the establishment of a state university in Illinois; in fact, it was just fifty years after the admission of the State to the Union that the state university was finally opened, and during all these fifty years the people of that great commonwealth lost the advantages which might have accrued to them and their children had they been wise enough to follow the example of the people of Michigan, or, as they ought to have done, to set them an example.

Before I was of age, I peddled tickets at a public election held in the community in which I was living, at which the question was to be decided whether a public high school should be established or not. The private educational interests of that region, hoping that the proceeds of public taxation might be divided among themselves, opposed the establishment and development of the public high school; and this is the history of every State in the Union and particularly so of the States this side of the Allegheny Mountains. After I began to teach as a principal of a public high school, I was compelled to lead for three years the campaign fought out at the polls for the continuance and development of the public high school itself; and here again the interest of the private institutions was thrown against the establishment of the free public high school, because of the hope that the public money might be divided among the private institutions instead of being spent upon the public agencies of education.

I doubt not that most of the other men whose names are appended to this petition have had a similar experience, and that they have seen by a bitter lesson how dangerous to the welfare of public education is this proposition to divide public funds among private

educational institutions, or to use a private institution as the agent for the expenditure of public funds. The very land grants themselves, when made to private institutions as was done by some of the States fifty years ago through ignorance or cowardice, illustrate these difficulties and many others in addition.

Some one has said that this is a purely local question in which the country at large has no interest; that Congress acting as a local legislature may do what it pleases in this as in other matters. If by this is meant that in case Congress does this we can not help ourselves, that is, of course, true; but if by this is meant that Congress has a moral right to do what it pleases in regard to this subject, no matter how it affects the interest of the rest of the country, we can not, of course, agree to it at all.

The influence of the Federal Government has become so enormous—one may say in many things so overwhelming—that it seems sufficient in many questions of state policy to point out that the Federal Government has done some similar thing, to justify fully the proposition.

We would most respectfully urge that the Federal Congress should not throw the great weight of its prestige and influence on the side of a division of public funds among private institutions, a policy which, wherever tried in the States on a large scale, has resulted in the most serious injury to the interests of private and public education alike.

What has been said thus far, gentlemen, would apply to the proposition to appropriate public funds to the George Washington University, even if it were a purely nonsectarian institution, and if it had managed its finances in a thoroughly satisfactory manner, and if its educational policy had always commanded the approval of the most advanced educational sentiment of the time. In other words, everything I have said here would apply to the most perfect private institution imaginable. I am coming now to a subject of great delicacy and which I, for my part, dislike to touch upon at all, and yet I do not think it would be fair for us to suspend this hearing without raising the question of whether, if Congress is determined to select a private institution as the agent for the distribution of public funds, it can wisely select the George Washington University. But the George Washington University has, by its application, necessarily raised the question whether it is a fit agent for the distribution of public funds. I am compelled, with great regret, to maintain its unfitness to serve such a function on the following grounds: It is unfitted by its sectarian history and affiliations to perform properly the duties of such a public agent. It has at present, it is true, in its charter the so-called "nonsectarian" provision, but this provision is exactly the same in meaning and almost exactly the same in wording as a similar paragraph contained in its charter when it was the Columbian University, and before that when it was the Columbian College. This paragraph did not prevent this institution from constituting its board of trustees and selecting its president practically from a single denomination, and the history of the institution will show that down to the time when the question of securing the federal appropriation was first raised, this clause did not prevent the institution from being associated, in the public mind and in its policy, with a single denomination. There is nothing in the

charter to prevent the institution from doing the same thing again. The present board of trustees, a self-constituting and self-electing board, could, by the same process as it used formerly, limit the membership in the board of trustees to a single denomination.

I do not consider, gentlemen, that this is a very likely act on the part of this board of trustees, as long as they hope to get federal appropriations; but this institution is under obligations, moral and legal, to the members of a particular denomination. The present charter provides for the establishment of subordinate denominational colleges as an integral part of the institution. One such college was established and was affiliated with a particular denomination. When this bill was introduced into Congress this college was abolished; temporarily, however, as the trustees were careful to explain, and without prejudice to the obligations of the board of trustees to the particular denomination interested in this special college. The fact of it is that all the invested funds of the university are really, morally speaking, the property of this special denomination, and as long as that condition continues to exist it is idle talk of there being no sectarian affiliation or obligation on the part of George Washington University. The fact seems to be that the institution is hopelessly caught in sectarian tanglefoot, and that it will in vain strive to pull itself free from such entanglement unless some public-spirited benefactor, or the Federal Government of the United States, gives it the money to meet these obligations.

No institution ought to ask to be made the agent for the distribution of public funds unless it can show in its own history that it has managed well its own funds. This will hardly be claimed by any friend of George Washington University in the present condition of its finances. An institution which deliberately sets out to use up its available funds, intended for permanent endowment, in the work of carrying on the ordinary expenses of the institution can certainly not lay claim to adopting a very wise or successful financial policy.

George Washington University is quite frank in saying that if it obtains these funds it proposes to pay for the instruction which it is giving in English, mathematics, French and German, history, and other subjects which may properly be a part of a course of a college of agricultural and mechanical arts, but which at present it is paying for, and ought to pay for, out of funds already provided and intended for the support of the college department of the university, and to which those funds are in all equity mortgaged. If George Washington University can spend these funds for these subjects and claim that it is doing this public work without even any change in its curriculum, the same argument exactly can be presented by Georgetown University or the Catholic University of America.

No institution ought to claim that it is a suitable agent for the expenditure of public funds for educational purposes unless it has a clearly defined and reasonable educational policy. No one can study the educational policy of George Washington University during the past ten years without becoming convinced that it has had no principle of control or direction which would be approved by sound educational sentiment of the country. The trustees of the Carnegie Foundation have criticised most severely, in two different reports, the financial and educational policy of the institution, and in this criticism the soundest educational advisors would, I believe, agree.

Finally, gentlemen, we desire to call your attention to the fact that there is no exigency in this matter except the exigency of George Washington University. For fifty years the district has gotten along without the benefits of the Morrill Acts. It can surely wait another year, or even longer, until a wise and sound plan of extending these benefits to the District of Columbia may be worked out and adopted.

We, for our part, earnestly beseech you and your fellow members in the Federal Congress not to complicate still further the problems of public education in the States of the American Union by the adoption on your part of a policy of granting public funds to private institutions.

I notice the report of a hearing given by this committee on December 10, 1909, which it seems to me is extremely misleading to people outside of the District and who do not know the actual facts connected with the circumstances of the educational policy in this District. At the hearing given by this committee I notice that Mr. Justice Harlan, of the Supreme Court of the United States, argued for this bill. It does not seem to your committee that it is quite the proper thing, in these days of moral uplift, for a justice of the Supreme Court to urge upon the Congress, among whose members are many men who practice in his court and may be beholden to him for favors, that they should make appropriations for the benefit of a private institution on whose pay roll the said justice has been for the better part of a generation. Gentlemen, when a citizen of Chicago, or St. Louis, or San Francisco reads this report and finds that Justice Harlan is favoring this appropriation, the high respect due to a man who holds his position, the high respect due to a man who has achieved the great record in national history which the great justice has achieved, leads that citizen to set upon his opinion a very high value. How much would that opinion be strengthened by knowing the fact that he is arguing in favor of an appropriation to an institution from whose pay roll he may be cut off if the deficit of that institution can not be made good?

I find, in reading the same hearing a little further, that Hon. H. B. F. Macfarland appeared in his capacity, as it is stated, as president of the Board of Commissioners of the District of Columbia. It is natural for people outside of this District to assume that when the president of the Board of Commissioners goes before a committee and argues in favor of a thing, he is doing it absolutely free of entangling influences of every sort; and here Mr. Macfarland states that he is appearing as president of the Board of Commissioners of the District of Columbia. There is no statement made in this hearing that Mr. Macfarland is president of the board of trustees of the George Washington University, and no citizen of New York or St. Louis or New Orleans or San Francisco can be expected to know that fact. Of course, Doctor Needham and Doctor Harlan appeared on behalf of the university, officially and openly as representatives of the university. I find in this hearing also a statement that Mr. John Joy Edson appeared as representing the Citizens' Committee of the District of Columbia. This committee was appointed, I am informed, by the president of the board of trustees of the George Washington University, and I am informed that Mr. Edson is also a member of the board of trustees of the George Washington University. No evidence of that fact appears in this hearing.

I find, further, that Mr. A. Lisner is called upon to represent the Chamber of Commerce of the city of Washington, and he represents himself as the representative of that particular interest. No suggestion is made, however, of the fact that Mr. Lisner is also a member of the board of trustees of George Washington University. In other words, gentlemen, with a single exception—that of Mr. Boutell, who introduced the bill—every man who testified at that hearing in favor of George Washington University was intimately connected with that institution and tied up in some way, either financially or through having his reputation at stake for sanity in the management of its finances, with the interests of that enterprise. I submit that is hardly a fair representation of the interests of the people of the District of Columbia in this important matter, and that an entirely false notion of the uninterested character of these testimonials, because of that fact, is given to the country. I thank you, gentlemen, for your hearing.

The CHAIRMAN. Have any members of the committee any questions they would like to ask?

Doctor JAMES. I may say that as far as our part of this is concerned, President Ayers of the State University of Tennessee, president of the National Association of University Presidents, and President Thompson of the State University of Ohio, and chairman of the executive committee of the American Association of Agricultural Colleges and Experiment Stations, are both in the room, and if anyone would like to ask them any questions they will be glad to answer them.

The CHAIRMAN. Do they desire to be heard?

Doctor JAMES. I do not know that they do. If anyone desires to ask them any questions as to the matter, they are here.

The CHAIRMAN. I have just one question I would like to ask you.

Doctor JAMES. Yes, sir.

The CHAIRMAN. In the course of your statement you said that George Washington University was required, by the terms of its charter, to establish subordinate colleges of a denominational character.

Doctor JAMES. No; I said it was privileged to do so, and that it had established one such college which was abolished after this bill was introduced, temporarily.

The CHAIRMAN. What was that college?

Doctor JAMES. That was called the Columbian College, and was organized as a Baptist institution under this nonsectarian institution. The trustees were all Baptists and the president of the board was a Baptist.

The CHAIRMAN. I thought from your statement that you meant that the George Washington University, as a university, was required or privileged to establish subordinate schools.

Doctor JAMES. It is privileged to, and it did establish this one, Columbian College. That is as far as it got.

The CHAIRMAN. Was that a subordinate school of Columbian University?

Doctor JAMES. Yes; it was a part of George Washington University. The programme announced that the undergraduate work was all to be done by a series of colleges which it was hoped would be supported by people interested, one by the Baptists and another by

the Episcopalians and another by the Methodists, and so on; a method most admirable and statesmanlike, I think, as long as carried out by private benefactions, but of course a curious thing to foist upon the public treasury.

The CHAIRMAN. If the members of the committee have no questions to ask Doctor James, and if no one else has any questions to ask, and no other gentleman desires to make a statement, the committee will hear anyone who desires to be heard in favor of the bill.

Mr. HARLAN. Mr. Chairman, I would like to be heard in behalf of the bill.

**STATEMENT OF DR. RICHARD D. HARLAN, REPRESENTING
GEORGE WASHINGTON UNIVERSITY.**

Doctor HARLAN. Mr. Chairman and gentlemen of the committee, I hardly think it is worth while to make any reference to the remarks which the president of the Illinois University was pleased to make about my honored father. I do not think that the members of this committee, or anyone living in Washington, would feel that at the close of his life, as he approaches his fourscore years, after thirty-three or thirty-four years spent in this city in close touch with the young men of the District, this committee was under any misapprehension as to the reasons for his interest in this measure of justice for the District of Columbia, and they would know that his words had their own weight, without the slightest reference to the fact that he is nearly at the end of his term of service with George Washington University. You knew that he was a member of that faculty.

Mr. Chairman, the distinguished men who are here in spirit, represented on this petition that has been presented to you, have made a long journey to Washington to defeat a certain bill. What is the nature of this bill? In this matter of federal appropriations for education in subjects related to agriculture and the mechanic arts, now granted to every State and Territory in the Union out of the Federal Treasury, toward which the citizens of the District pay their full quota, the Gallinger-Boutell bill at last put the District of Columbia, with its 350,000 native and naturalized Americans, upon a level with Hawaii and Porto Rico; and in the second place it provides what is admitted by those who know the present condition of the Public Treasury and the present state of opinion in Congress as to adding to the educational budget of the District to be the only feasible plan for a very long while to come for making the Morrill appropriations locally effective for the hundreds of young men whose parents are unable to send them out of the District and who must get all of their education while they are living in the District; and in coming to Washington upon this generous errand they have assured you that they represent some 36 state universities and some 15 of the independent land-grant colleges. We may therefore imagine the presidents of these 62 institutions now assembled in this room in the hope of defeating this just and wise measure. With one important difference, the District of Columbia at this moment resembles an old dorky who was brought before a court in Maryland to be tried for some petty offense. He could only read a little, and he slowly spelled out the indictment, "The State of Maryland vs. Moses Johnson." "What does dat 'vs.' mean, boss?" "Why, Mose, that is a

Latin word; it stands for 'versus' and means 'against.' What it really says is, 'The State of Maryland against Moses Johnson.'" "Why, boss, you don't mean to tell me dat de whole State of Maryland is agin dis one lonesome old niggah?" "Yes, Mose." "Den, if dat's so, boss, dis heah niggah gibs up right away."

But right here, gentlemen of the committee, comes the difference between the District of Columbia and that poor old darky. The District of Columbia does not give up right away, for it has faith in the intelligence and in the ingrained love of fair play which is characteristic of the typical American Senator and the typical American Representative. The three gentlemen who are the bearers of this most generous petition and memorial represent institutions which are being aided out of this same fund.

I will not take the time to read the figures, though I would like to furnish them in complete form, but I simply wish to indicate the character of this. I have here a table which gives the number of acres of public lands that have been granted to every one of these institutions. The District of Columbia had no share in the land grants which came out of our patrimony as well as theirs, inasmuch as the proceeds of that land grant are now being used to support every one of these institutions. The first column of this table gives the number of acres of public land given to those institutions, amounting to 10,000,000 acres. The second column gives the total value of the invested proceeds of those public lands now being held by the public land act for the benefit of these same institutions, a gift that came from us all; and that column foots up \$12,000,000. We have no share in that fund. The next column gives the amount of annual income, coming from this invested land-grant fund to these several institutions, from their state treasuries, a gift which came from the people of the United States, and that column foots up \$117,000 for this year. That is entirely outside of the \$40,000 which goes to each State and Territory of the United States under these acts.

In accordance with the promise made to the committee at the hearing on Friday, February 25, and as throwing a strong side light upon the injustice of the petition signed by the presidents of certain institutions outside the District in opposition to the pending bill, I file herewith a partially complete table of statistics of the grants of land and appropriations of money that have been made by the Federal Government to 51 of the land-grant institutions in aid of the very forms of education which this bill would help to provide for the young people of the District of Columbia. Special attention is called to the summary.

The Hatch amendment to the Morrill Act, passed in 1887, appropriated \$15,000 a year to each State for an agricultural experiment station, this sum having been gradually increased by the Adams Act of 1906 to a maximum of \$30,000 a year. As the Gallinger-Boutell bill would not extend the benefits of the Hatch and Adams acts to the District of Columbia, the amounts distributed to the States under those acts are not included in the following table:

Institutions.	1 Acres of land allotted to the several States, under act of July 2, 1862.	2 Land-grant trust funds held by the States, from proceeds of land grants of July 2, 1862.	3 Income received by "land-grant colleges" from land-grant trust funds for 1908-9.	4 Total income of "land-grant colleges" from land-grant trust funds from 1862 to 1910.	5 Appropriations for 1908-9 from the United States, under act of March 4, 1907 (Nelson amendment).	6 Total appropriations to "land-grant colleges" from the Federal Treasury, under second Morrill Act and Nelson amendment.	7 Grand total of money received from land-grant trust funds held by the States, and from annual appropriations by the United States.
Alabama Polytechnic Institute.	240,000	\$253,500	\$20,280	\$365,040	\$19,280	\$274,864	\$639,904
Arizona University.					35,000	535,000	535,000
Arkansas University.	150,000	130,000	3,900	154,357	25,455	363,365	517,722
California University.	150,000	732,233	38,340	769,363	35,000	500,000	1,269,363
Colorado Agricultural College.	90,000	128,465	8,188	168,524	35,000	500,018	668,542
Connecticut Agricultural College.	180,000	135,000	6,750	91,034	35,000	447,500	538,534
Delaware College.	90,000	53,000	4,980	89,640	28,000	400,000	489,640
Florida University.	90,000	153,800	4,994	150,990	17,500	250,000	400,990
Georgia Agricultural College.	270,000	242,202	16,954	305,172	23,333	355,335	660,507
Idaho University.	90,000	15,717		4,773	35,000	451,000	455,773
Illinois University.	480,000	647,478	32,555	534,876	35,000	482,000	1,016,876
Purdue University (Indiana).	390,000	340,000	17,000	301,750	35,000	500,000	801,750
Iowa Agricultural College.	204,000	683,709	35,375	660,500	35,000	462,000	1,122,500
Kansas Agricultural College.	90,000	492,381	27,110	504,184	35,000	500,000	1,004,184
Kentucky University.	330,000	144,075	8,645	161,550	29,925	477,500	589,050
Louisiana University.	210,000	182,313	9,116	159,628	19,380	245,988	405,516
Maine University.	210,000	118,300	5,915	107,370	35,000	500,000	607,370
Maryland Agricultural College.	210,000	118,000	5,797	102,752	35,000	500,000	602,752
Massachusetts Agricultural College.			3,650	126,043	23,333	333,334	459,377
Massachusetts Institute of Technology.	360,000	219,000	5,307	93,787	11,667	166,665	260,482
Michigan Agricultural College.	235,673	980,347	70,386	960,311	35,000	648,200	1,608,511
Minnesota University.	94,000	570,748	23,790	402,302	85,000	498,750	901,052
Mississippi Agricultural College.	207,920	98,575	5,915	105,482	17,765	248,981	354,463
Missouri University.	277,016	349,881	17,494	352,081	32,812	482,249	834,380
Montana Agricultural College.	90,000	186,797	8,000	69,722	35,000	452,000	521,722
Nebraska University.	90,000	444,000	32,000	341,893	35,000	490,000	821,893
Nevada University.	90,000	101,710	4,580	45,302	35,000	500,000	545,302
New Hampshire Agricultural College.	150,000	80,000	4,800	86,400	35,000	500,000	586,400
Rutgers Scientific School.	210,000	116,000	5,800	113,266	35,000	500,000	613,266
New Mexico Agricultural College.					35,000	500,000	500,000
Cornell University.	989,920	688,576	34,429	532,062	35,000	500,000	1,032,062
North Carolina Agricultural College.	270,000	125,000	7,500	112,500	23,450	307,168	419,668
North Dakota Agricultural College.	130,000	811,050	45,935	232,554	35,000	500,000	732,554
Ohio University.	630,000	524,177	31,451	572,096	35,000	500,000	1,072,096
Oklahoma Agricultural College.	250,000				31,500	438,500	438,500
Oregon Agricultural College.	90,000	196,519	11,350	181,242	35,000	500,000	681,242
Pennsylvania College.	780,000	427,280	25,637	440,702	35,000	500,000	940,702
Porto Rico University.					35,000	65,000	65,000
Rhode Island Agricultural College.	120,000	50,000	2,500	35,385	17,500	482,500	517,885
Clemson Agricultural College.	180,000	95,900	5,754	97,828	17,500	239,500	337,328
South Dakota Agricultural College.							
Tennessee University.	160,000	62,288	18,845	87,631	35,000	500,000	587,631
Texas Agricultural College.	300,000	400,000	23,960	430,480	35,000	500,000	930,480
Utah Agricultural College.	180,000	209,000	13,280	255,040	26,250	377,850	632,890
Utah Agricultural College.	200,000	183,443	7,282	62,573	35,000	500,000	562,573
Vermont University.	150,000	135,500	8,130	146,340	35,000	500,000	646,340
Virginia Polytechnic Institute.	300,000	344,312	20,658	371,806	23,333	333,336	705,142
Washington State College.	90,000	166,463	10,000	30,844	35,000	496,000	516,844
West Virginia University.	150,000	90,000	5,400	111,441	28,000	401,000	512,441
Wisconsin University.	240,000	303,360	13,847	251,175	35,000	465,000	716,175
Wyoming University.	90,000	21,450		24,146	35,000	500,000	524,146
Total.	10,578,529	12,583,559	713,579	11,303,537	1,535,983	21,640,603	32,944,140

SUMMARY.

Column 1.—Over 10,000,000 acres of land given to the several States, under first Morrill Act of 1862, from the public domain belonging to the entire American people, including the citizens of the District of Columbia.

Column 2.—The trust funds held by the several States from the sale of those lands, aggregates over \$12,000,000; the annual income therefrom is administered by the 51 institutions designated by the state legislatures.

Column 3.—The annual income from said trust funds received by those 51 institutions, amounting, in 1908-9, to over \$700,000.

Column 4.—Total income from said trust funds from 1892 to 1910 was over \$11,000,000; the income from 1866 to 1892 (statistics not available) would bring up this total to over \$20,000,000.

Column 5.—The annual Morrill appropriation received in 1908-9 by the 51 land-grant institutions, under Nelson amendment, was over \$1,500,000.

Column 6.—The total annual appropriations received by the 51 land-grant institutions from the Federal Treasury, under second Morrill Act (1890) and the Nelson amendment (1907), were over \$21,000,000.

Column 7.—Grand total of income received by these 51 institutions from the trust funds held by the States (column 4) plus annual appropriations from Federal Treasury (column 6) is over \$33,000,000; with the missing statistics this would reach the colossal sum of over \$43,000,000.

WHAT THE THIRTY PROTESTING LAND-GRANT COLLEGES HAVE RECEIVED.

The presidents of 31 out of the 51 land-grant institutions signed the petition of protest presented by President James at the recent hearing. It may fairly be taken for granted that the other 20 were invited to do so.

Since that hearing President Harter, of the Delaware College, has written to say that he had been "persuaded" that the George Washington University was still a denominational institution in its organization and management. Having discovered that the charge of sectarianism was without foundation, and that the institution is entirely undenominational, he has written to his Senators to withdraw his name from that petition.

In accordance with the promise given at the hearing I append the following summary of what the 30 protesting land-grant institutions have received from the Federal Government:

1. They now have the help, each year, of the annual income of the land-grant trust funds held by their respective States. The principal of the funds held by the 30 States in question amounts in all to over \$9,700,000, the total income turned over to those 30 institutions, since 1892, amounting to over \$8,700,000; the statistics prior to 1892 are not available.

2. Under the second Morrill Act (1890) and the Nelson amendment (1907) these 30 protesting institutions have also received over \$13,000,000 in the annual appropriations from the Federal Treasury.

3. Adding together these two sources of income, the 30 protesting institutions are known to have received over \$22,000,000; and if the missing statistics from 1866 to 1892, referred to in connection with the foregoing table, were now available, the grand total received by these 30 protesting institutions would not be less than \$31,000,000.

And yet, the presidents of these same 30 institutions have apparently sent their representatives all the way to Washington in order to protest against what we believe to be the only feasible plan, for the time being, for giving a very moderate amount of federal aid (only \$50,000 a year) for the purpose of providing similar forms of education for the young people in the District of Columbia.

In the whole history of American education was there ever a more monumental instance of generosity?

THE LAND-GRANT COLLEGE PRESIDENTS WHO FAVOR THE PENDING BILL.

Permit me also to file with the committee, as germane to this hearing and as a part of the record of the case, the following opinions of the presidents of certain of the land-grant institutions that have been authorized for publication:

[President Beach, of Connecticut Agricultural College.]

I see no reason why the District of Columbia should not receive the benefits from the Morrill land-grant fund, and I hope that Congress will take favorable action in the matter.

[President Mell, of Clemson Agricultural College, South Carolina.]

I believe that the United States Congress ought to give to a college in the limits of the District of Columbia the same recognition given to the States under the law of 1862, and the other acts appropriating money for the establishment of agricultural and mechanical colleges in the States and Territories. I see no reason why the George Washington University should not be a beneficiary under the terms of those acts.

I would, therefore, feel gratified to learn that Congress has made the necessary appropriations for the establishment [in the District] of a college of agriculture and mechanic arts, and that the George Washington University has been made a beneficiary under the terms of those acts; and I trust, therefore, that the efforts you are putting forth for the accomplishment of this end may be in every way successful.

[President Harter, of Delaware College.]

I can see nothing but justice in your plea for national aid to the education of the citizens of Washington, nor can I see any injustice in making the appropriation asked for to a private institution, provided it complies fully with the requirements of the law.

Mechanic arts are as surely provided for as agriculture in the institutions receiving government aid under the Morrill bill of 1862, and a subsequent Morrill bill of 1890, and also under the Nelson bill passed a few years ago. In the event of the Government's establishing a national university at Washington, which would admit candidates for the bachelor's degree, the money derived from the several bills could be applied to such an institution by appropriate legislative enactment; so that President James' objection need not have the least weight.

[President Sledd, of Florida University.]

I think your position is a correct one and I hope that the Morrill fund will be made available for your use, subject, of course, to withdrawal, if it should be deemed necessary to establish a government institution in the District of Columbia; an act which, personally, I should regard as unnecessary and unwise. I have not sympathized with the attitude of President James in this matter, and you may be sure that this institution will not seek to interfere with your reception of the benefits of the various Morrill acts.

[President Hardy, of Mississippi Agricultural College.]

I agree with your views in every sense of the word. I was sick when President James's communication came; but as soon as I returned I at once wrote to the Representative from our district, telling him that we had no objection whatever to the bill, and that the only concern we had was to protect our own interests. I think the land-grant colleges should have nothing to do with any legislation that does not jeopardize their interests. With the light now before me, I favor the bill, and were I a Member of Congress I would vote for it. There is glory enough for us all in the great work of industrial education in this country.

[President Kerr, Oregon Agricultural College.]

I do not know of any good reason why the people of the District of Columbia should not have the benefits of the Morrill acts. In my judgment, Congress would be amply justified in providing for the establishment of a land-grant institution for the District of Columbia, or of making an annual appropriation to an existing institution in the District, for the promotion of such kinds of

industrial education called for in the Morrill acts as may be of special interest to the people in the District.

The Gallinger bill seems to make the necessary requirements regarding the administration of the appropriations.

[President Stone, of Purdue University, Indiana.]

This question, as I now see it, has resolved itself into two phases:

First, the question of placing the District of Columbia on a footing with the other political divisions of the country as regards the application of the Morrill acts. I have no doubt but that this is fair, and the right thing to do.

Second, as to the form in which this application shall take effect. On this point my mind is not yet clear; but I am inclined to feel that it is a point which the District of Columbia should settle for itself, as the people of Indiana would wish to do if such a question were put before them.

[President Widtsoe, of Utah Agricultural College.]

1. I am in hearty sympathy with the first provision of the Gallinger amendment relating to the extension of the benefits of the Morrill acts to the District of Columbia.

2. Until such time as Congress, as the legislature of the District, shall provide a District-Government college of agriculture and the mechanic arts, I should certainly be in favor of the George Washington University as the recipient of the benefits of the Morrill appropriation.

Personally, I am in favor of a great national university, either established outright, as such, or built on the foundation of some other institution already organized, as, for instance, the George Washington University.

[President Edwards, of Rhode Island College of Agriculture and Mechanic Arts.]

I approve unreservedly of the first section of the Gallinger amendment to the Morrill acts, including the District of Columbia with the States and Territories in the terms and benefits of said acts.

As to the second section, designating the George Washington University as the institution to receive the District's share of the Morrill appropriation: Personally, I am convinced that the Government should exercise direct supervision and control of all institutions to which government funds are regularly and periodically appropriated. Because of this conviction and without information as to whether the provision of the amendment adequately recognizes this principle, I can not, consistently, *advocate* the second provision. (The italics are President Edwards's.)

As, however, so far as I am informed, the George Washington University by the proposed amendment would come into the same relation to the Government as now exists in the case of Cornell University, the Massachusetts Institute of Technology, and Rutgers College; and as, whatever may be my convictions, I do not for a moment conceive it to be my duty to protest to the legislatures of New York, Massachusetts, and New Jersey, nor yet to the Congress of the United States, on a matter which is exclusively the affair of the people of each State concerned, I therefore feel that it would be equally intolerable and unpardonable for me to *protest* in what regards exclusively the District of Columbia. (The italics are President Edwards's.)

In further explanation, President Edwards quotes the following from a recent letter of his to the president of another land-grant institution who had written to suggest that he cooperate in the proposed movement on the part of the "land-grant colleges" to defeat the Gallinger-Boutell bill:

"The attitude of passivity in this matter seems to me the only one that we can in honor take, unless we are ready actively to urge the stoppage of appropriations to institutions that stand in exactly the same category as the George Washington University. Is it proposed that the Association of American Agricultural Colleges and Experiment Stations shall take this step?

"Congress in acting on such matters for the District is simply a local legislature, and if before Congress, as the national body, no question is raised as to the action of the legislatures of New York, Massachusetts, and New Jersey in the matter of alienating land-grant funds, why should such a question be raised before the local legislature of the District of Columbia?

"I can not see the remotest connection between the disposal of the District of Columbia's land-grant fund and the establishment of a national university.

"If the national university is to be in any sense a duplication of institutions now existing in the various States—an institution, in other words, for the support of which, under the present wording of the statutes, land-grant funds would be properly and legally available—then I am steadfastly opposed to the idea of such a university, and would certainly do nothing to aid in its establishment.

"If, on the other hand, it is to be an institution with no undergraduate departments—an institution for study and research, to which only men of the highest training and attainments, from all over the Nation, may resort for special work, under direction and help from world-renowned scholars and with the advantage of the splendid collections of various kinds now assembling under governmental activity—then the land-grant funds do not come into consideration. They were not designed for such service, and certainly it would be the grossest injustice to take for such purpose the share of the District of Columbia, and not that of any other geographical division of our people."

Take the State of Illinois as an example. Illinois began in 1890 to receive this money under the first Morrill Act, increasing by \$1,000 per year up to the year 1900, when it was \$25,000 a year, and then standing stationary at that until 1907 and then beginning again to increase by \$5,000 each year until it should reach \$50,000 a year, the appropriation for the present year is \$40,000. The Illinois State University has received \$500,000 from the Federal Treasury for the benefit of its young people, in addition to the amount, perhaps \$1,000,000, that has come during the years that the land-grant fund was invested. We can never be even with the University of Illinois. All we ask is to be allowed to come in at this stage of the game and get our \$40,000 a year for the District of Columbia.

The CHAIRMAN. In order that the statement may be entirely accurate, I perhaps ought to remind you that under the provisions of the Adams Act and the Nelson amendment, the amounts which will be paid to the state colleges and experiment stations when those acts mature will be just double the sums originally provided by the Morrill Act.

Doctor HARLAN. Yes.

The CHAIRMAN. In other words, \$50,000 for the agricultural colleges and \$30,000 a year for the experiment stations.

Doctor HARLAN. Yes; thank you very much, Mr. Chairman. These figures did not take into account the experiment stations at all, because the Gallinger-Boutell amendment does not admit the District to the benefits of the Hatch Act. I simply compared them on the same basis.

The Morrill acts simply grant to each State and Territory of the Union a certain amount. For what purpose? The acts do not say one word which implies even that the State is to create a state university or a state college. The words are carefully chosen. This money is to be used for the maintenance and endowment and support of at least one college in each of the several jurisdictions that will teach these subjects. By the very terms of the acts the choice of the local instrumentality is left to the state legislatures. It is a purely local practical and financial problem, and where the States did not have state universities or were not ready to establish state universities, the acts themselves, by their very omissions and by one or two phrases of those acts, seemed to take it for granted that the State was at liberty to utilize the best instrumentality that was at hand.

The Federal Government has had no interest in the local question; it was only desirous that these forms of education should be pro-

moted, and that was all; and from the very beginning of the administration of this beneficial body of laws the States have been given that liberty. The State of Connecticut, until it was ready to establish its state college of agriculture, utilized the privileges of Yale. The State of Rhode Island used the privileges of Brown until it was ready to establish the state college, and for thirty or forty years the States of New York and New Jersey and Massachusetts have utilized the privileges of institutions upon private foundations, but which were brought into certain relations to the State as soon as they were appointed to do that service. And that has been approved by the Interior Department, with the tacit consent of the Congress of the United States, for over a generation. Now, will the gentlemen come here, as you sit here on this second question of the method of applying this law, as you sit here as the committee of the District legislation, and will he tell you that as the District legislature you are not free to exercise the same liberty of choice which the Federal Government has permitted to these three States, and two or three others before that? It is a purely practical question which must be decided in accordance with the needs of the District, and what is financially feasible.

Now, Mr. Chairman, I would like at this point to ask Doctor James a few questions, if you will permit me.

The CHAIRMAN. Doctor James, will you permit Doctor Harlan to ask you some questions?

Mr. JAMES. I presume I may answer these individually or when you are through with your questions. That is, the questions may be given categorical answers?

Doctor HARLAN. Doctor James, I believe that in February of last year you addressed a letter to the presidents of what were known as the land grant colleges in order to enlist the opposition of these colleges and the state universities generally, to the passage of this bill. I will not take the time to read all of that letter, but after describing that this money was to be given to the District and then given, as a private institution, to the George Washington University, you go on to say:

Is it not wiser for this money to go to the national university which ought to be established in the District of Columbia and which surely will be established in the course of time, rather than to a private undertaking?

I believe you wrote some such letter as that?

Mr. JAMES. I did, sir.

Doctor HARLAN. Yes. Now, is it not true that the provisions made under the Morrill acts are intended for the education of the industrial classes along certain undergraduate lines?

Mr. JAMES. I do not see that that has anything to do with this question. Mr. Chairman, I would like to answer all of Doctor Harlan's questions together, if he will put them so that I can take them up seriatim rather than as he raises them, because it requires considerable repetition to do it in this way.

The CHAIRMAN. If Doctor Harlan asks you any questions upon which you are not informed, or which you do not care, for any reason, to answer, of course it is perfectly within your province to decline to answer them.

Mr. JAMES. I would like to answer all his questions together in one statement.

The CHAIRMAN. I think it would be more satisfactory to the committee if the questions should be answered as they are asked.

Mr. JAMES. You think it would?

The CHAIRMAN. Yes; in order that we may have this matter before us, and have all the information we can get.

Mr. JAMES. Very well. In answer to this particular question, I have to say that this letter did not concern the assignment of money under the Morrill acts particularly. It was a question of an appropriation to a certain purpose. The details as to the proposition to take the money under the Morrill acts and utilize them as was proposed under the scheme sent out by George Washington University, had not at that time been called to my attention. I should answer in regard to the first question, then, that the money under the Morrill acts, so far as I know, was not intended for that purpose.

Doctor HARLAN. For what purpose?

Mr. JAMES. For the establishment of graduate university work in the District of Columbia.

Doctor HARLAN. Then you admit that the Morrill Act appropriations are intended for undergraduate work?

Mr. JAMES. I should not say that at all, because the Morrill acts appropriations are given to the individual States for the promotion of agriculture and mechanic arts, and instruction in agriculture and in the mechanic arts. Whatever is necessary in the development of agricultural instruction is a proper subject for the use of those funds; and if the University of Illinois, which happens to have the Morrill fund in Illinois or the agricultural college in the State of Michigan which happens to have it there, should think that the interests of agriculture would be advanced by research in the fundamental, underlying principles of agriculture and the development of men who can make those studies, then it is not only perfectly entitled to do that, but the law in one case requires it, and there is a specific provision in the Adams Act mentioning that purpose, making it the duty of the institution to use those funds for that purpose.

In other words, if I may end that up right there, I would say that the purpose of the Morrill Act is to provide the most efficient instruction possible, the most thorough investigation possible, in the sciences underlying agriculture and the mechanic arts; and of course that calls for investigation and research, for otherwise it would be absolutely impossible to do anything at all except high school work.

Doctor HARLAN. I would like to ask Doctor James this simple question. In the charter which he introduced in the bill last winter for the national university, I believe that the degree of master of arts was the condition of entrance, was it not?

Mr. JAMES. Mr. Chairman, I do not understand that we are discussing the bill regarding the national university which either has been or may be introduced in Congress. I understand we are discussing a particular bill here. If I go into this question it will take a long time. Shall I answer the question?

Doctor HARLAN. I will ask you this. Do you still think it would be wiser, or rather do you think it would be proper, to use the Morrill appropriation, which is granted for the instruction of the industrial classes, for a graduate university?

Mr. JAMES. Mr. Chairman, the Morrill acts call for the expenditure of this money in the way in which the agents may think best to promote instruction in agriculture and the mechanic arts; not in medicine, for instance, or in law or in pharmacy, but in agriculture and the mechanic arts; and within those limits the purposes of the Morrill funds are as broad as investigation and research and instruction in this or any other country.

Doctor HARLAN. Doctor James has answered the question as far as I think he will do so. I will proceed, then, with what I have to say.

The CHAIRMAN. Have you not any further questions to ask him?

Doctor HARLAN. Not now.

Mr. JAMES. You do not care for anything else?

Doctor HARLAN. No, sir. Mr. Chairman, no one can read the Morrill acts and have any doubts upon the point that the purpose of those acts is to give undergraduates collegiate work for the industrial classes. In the light of Senator Morrill's speeches, that is as clear as the noonday. If that is given to any given community, it is of course possible that they may build a little graduate work on top of that, but the essential purpose is to provide the industrial class of any community with those forms of education, and it seems to me that the whole purpose of this movement is that the relief of the District of Columbia should be postponed in the interest of a movement that may never be carried through to success.

I want to say a few words now as to two points that were made by Doctor James. He speaks of the signatures that have been secured. He gives you an impression of their representative character, and they are representative.

But I raise the question as to whether the signatures in many cases were not given under a misapprehension as to the character of the George Washington University. Doctor James has indicated here, and he indicated in the memorandum that was sent broadcast throughout the country through the press to educational institutions, that the George Washington University was a sectarian institution. The charge is too ridiculous, for men who live in Washington, even to be referred to; but as he has made it again in your presence, it is necessary for me to say something on the subject. To everything that Doctor James has said with reference to the alleged sectarian character of this institution, we reply that it has to do with an institution which no longer exists, the Columbian University. With Doctor James, because our predecessor had been denominational, the reorganized George Washington University is not permitted to change its relation to the Baptist Church. Doctor James was informed by me last April that the charter had been changed. He says the charter used to be as it is now; and yet that did not prevent men filling up the board of trustees from one denomination. He forgets that a good deal of water has passed under the bridge since seventy-five years ago and fifty years ago. He forgets that the irresistible modern trend is toward undenominational universities.

I also informed Doctor James that in order to carry out the spirit of that reenacted section our board of trustees had changed its constituency, so that at the time I wrote to him the Baptists did not number even one-third of the board of trustees, and the Baptists were outnumbered by the Presbyterians and the Episcopalians. I informed him that it was the permanent policy of the reestablished

George Washington University never again to permit one group of men to approach one-half of the board, and I called his attention to the nonsectarian significance of the name "George Washington University."

The CHAIRMAN. Has any protest ever come to you or any other friends of the university, from any of the contributors either to current or to permanent funds, on account of the change in the charter?

Doctor HARLAN. I do not know of any protests. If there have been any, I am not aware of it. I do not know whether Doctor Needham knows of any or not.

Mr. LEVER. I should like to ask Doctor Harlan when this charter was changed.

Doctor HARLAN. Six years ago. The board of trustees was immediately reorganized on this broad, nonsectarian basis, and this university, which is represented to you to-day as being tainted with sectarianism, as being controlled altogether by one church, has on its board of trustees 5 Episcopalians, 5 Presbyterians, 1 Methodist—and we hope to elect another very shortly—4 Baptists, 1 German Reformed, 1 Unitarian, 1 Swedenborgian, and 1 Hebrew.

Mr. LEVER. How long has it been since this movement started to have George Washington University participate in the Morrill funds?

Doctor HARLAN. It began about a year ago, and this change in the personnel of the board was made six years ago. I understood the gentleman to say that we changed just about the time this bill was introduced. That is a mistake. This change was made all at once, when we reenacted that old clause in the charter, when we reorganized the board and committed ourselves under the name of George Washington University to a platform on which men of all creeds and no creeds could unite in the District of Columbia.

Mr. BEALL. When this reorganization occurred did you have in contemplation at that time any appeal to the Federal Government for the benefits of the Morrill acts?

Doctor HARLAN. I was not here six years ago, but I do not believe the possibility of our becoming eligible to do this work for the District of Columbia had peeped above the horizon at that time, so far as I know. The change was made because we realized that the only platform upon which we could build up a great institution in the District of Columbia was one upon which all men could stand.

Mr. HAWLEY. I got the impression from what Doctor James said that the resources of the George Washington University were under the control of some particular sectarian communion.

Doctor HARLAN. Not at all. We are under no bonds whatever with the Baptist Church. Let me read you here the farewell which the Baptist Church in its organized capacity made, most sorrowfully, to this institution. Let me read to you from the report of the committee of the Baptist Association.

Mr. HAWLEY. Your funds are administered by your board of trustees, as at present constituted?

Doctor HARLAN. Absolutely. There is not a bond that connects us with the Baptist Church at the present time.

The CHAIRMAN. You do not recognize any moral obligation to any previous donors to continue to work along denominational lines?

Doctor HARLAN. That is implied in a statement that has been made to you with regard to the funds that were contributed by the Baptists. That was before I came here, and I would rather Doctor Needham would answer that question, if he will, either in that connection when he comes to address you or now.

The CHAIRMAN. Can you answer that question in just a few words, Doctor Needham?

Doctor NEEDHAM. It will take me just a little time to explain that reorganization.

Doctor HARLAN. I think you had better do it.

Doctor NEEDHAM. It will take me five or ten minutes to explain the reorganization leading up to that.

The CHAIRMAN. Then I think we had better have Doctor Harlan continue with his statement.

Doctor HARLAN. Here is a report of the Committee on Education of the Columbia Association of Baptist Churches which was held in Washington in November, 1904, shortly after the board of trustees of the old Columbian University had taken the steps to make the institution thoroughly nonsectarian. In this report, as I say, they take their solemn and sorrowful farewell of this university, and it emphasizes most eloquently the fact that the bonds that connected this institution with the Baptist church—I emphasize the word "church" purposely—has been cut forever. We hold the bonds of love and gratitude to the devoted men of that church, and will always hold them; but the bond connecting the university with the church in any way was cut, and anyone who knows anything of the tendency in that direction knows that that was forever. In this report the Baptist association of this region says:

The most striking occurrence to the Baptist denomination during the past associational year, in educational matters, is its loss of the control and ownership of the Columbian University, the oldest Baptist educational institution, with the exception of Brown University, in America.

On the very day on which, one year ago, this association was considering the report of its committee on education, a bill was introduced in Congress to amend the charter of the university by repealing the amendment of 1898, and thus to "restore" the charter to the original form in which it was enacted in 1821. While, in form, an amendment to "restore," the board of trustees had, by a very large majority, declined to concur in a proposed accompanying resolution offered by a small minority of the Baptist members of the board, that, in thus returning to the original terms of the charter, it was not proposed to alter the relation which the institution, since its foundation, had borne to the Baptist denomination, by which it had been founded.

As a matter of fact, the immediate purpose and object of the amendment was to enable the board of trustees to remove the institution from denominational ownership and control, and to transfer it, with its franchises, equipment, and property, and by a changed name, also authorized by the amendment, to the control of an undenominational and purely secular organization—the basis of which transfer had been for some time, previously, under negotiation and consideration, and which transfer was consummated shortly after the passage of the amendment.

The minority of the board wished to have that declaration that in returning in form to a nonsectarian university we did not propose to cut our connection with the Baptist denomination. That motion was lost, and we find that fact here recorded sorrowfully and regretfully by the Baptist Church itself.

As a matter of fact the immediate method and object of the amendment, which was carried through, was to enable the board of trustees

to remove the institution from denominational control and transfer it, with its franchises, its equipment and property, and with a changed name also, to the control of an undenominational and purely secular organization, the basis of which transfer had been for some time previously under negotiation and consideration, and which transfer was consummated shortly after the passage of the amendment. Could anything be more eloquent of the absolute change in this institution? Mr. Chairman, is it possible that men coming here from outside, coming from a thousand miles distant from the city, can suggest to your minds that we men here, whom you know, have something up our sleeves in reference to this denominational idea? Whom will you believe, the men who make these insinuations and these reckless guesses? In Doctor James's memorial he said that possibly the majority of the board of trustees were still Baptists. He did not know, but he just threw that wild guess out into print; and at the very moment when he wrote it the board was constituted as I have described, with four Baptists out of twenty-one members of the board.

Will you believe, I say, the reckless guesses and insinuations of men who know nothing of this institution, or will you take the word of the trustees of this institution, and its officers, most of whom are known to many Members of Congress, that they will faithfully carry out the nonsectarian provision of their new charter and be true to that name, George Washington, which is suggestive of the broad Americanism of this institution, from now to the end of the chapter? Whom will you believe? We do not doubt the answer to that question. Take the professors of the institution. Often, though you may have a nonsectarian plan and a broad board of trustees, the president could fill the faculty—he or his predecessors—with members of his own church, and give a certain subtle atmosphere to the institution. When this question came up I went to Doctor Needham and asked him how many Baptists there were on our administrative and teaching staff; and he said: "Well,"—counting in his mind and on his fingers—and when he got to the fifth finger he halted, and he said: "Well, I know there must be more than five or six; there probably are more, but I do not recall." I went to the two or three men in the building who were in constant touch with the life of the institution and asked them the same question. They were as ignorant as the president was of the denominational relationships of our faculty. That fact was eloquent proof of the fact that it was of no interest to the men in charge of that institution; so I made up my mind I would find out, myself, and I sent out a little inquiry to the members of our administrative and teaching staff, with this result, shortly. Here are the facts shown by replies received:

Episcopalians.....	61
Presbyterians.....	32
Methodists.....	20
Baptists.....	13
Congregationalists.....	11
Unitarians.....	10
Lutherans.....	8
Roman Catholics.....	7
Universalists.....	3
Quakers.....	3
Disciples.....	3
Hebrews.....	2

German Reformed.....	8
Methodist Protestant.....	1
Swedenborgian.....	1
Christian Scientist.....	1
No denominational affiliation.....	18
Total.....	192

And yet gentlemen come here and have the face to insinuate to the people of Washington that there is a trace of sectarianism in the George Washington University. The gentleman must be very hard put to it in his efforts to defeat the only possible plan for getting this appropriation locally effective if he is willing at this late date to make that charge. Mr. Chairman, Tennyson somewhere says:

A lie that is all a lie
Can be met with and fought outright;
But a lie that is half a truth
Is a harder matter to fight.

The half truth in this case is that the old Columbian University, which is dead, was under denominational auspices; but the untruth is that the new reorganized George Washington University, flying his name at its head, is in any sense sectarian. It seems extraordinary that so much time should be necessary to refute such a baseless and reckless charge or insinuation as that. There is no feature in our charter which calls for the creation of denominational colleges. The word is not used in our charter.

In conclusion let me refer to two points that Doctor James makes. The whole attack upon this bill proceeds upon a misunderstanding or a misstatement of the terms of the Morrill acts and the method of their local application. The very phrase that has been used several times, of "making a grant of money to the George Washington University," shows that the acts are not correctly described, at least—whether they are correctly understood is not for me to say, but they are not correctly described. The money is a grant of money to the District, not to the institution, and the District legislature chooses its instrumentality to make that appropriation locally effective. Now, a good illustration of the difference between a grant of money to an institution itself and the choice of this particular institution as the instrumentality of making this appropriation effective is seen in the case of Howard University.

Howard University does get a grant of money from the Federal Treasury because it needs it, because the nation is under special obligation to this institution at the apex of the educational institutions for the colored race, to raise it up and to raise up teachers for it; but the Federal Treasury makes no grant of money to the Illinois University, nor would it make a grant to George Washington University. The grant is made to the State of Illinois and to the District of Columbia, and as there is no state university for the District of Columbia, in order that these young men may have the education that these acts provide for, you would utilize us for the time being as your local instrumentality. "But," says Doctor James, "if you once let the George Washington University be appointed for this purpose, if they once get their hands on this money, you can not get it away." Well, under what circumstances would Congress wish to change its policy? How would it change its policy in this

regard? In only one way. We may push aside as absolutely irrelevant all this talk about Georgetown University and the Catholic University of America and the Methodist University asking for a similar appropriation.

Under the law there is only one appropriation for the District. If you chose to split up that appropriation and to fritter away its effectiveness; if all these four institutions were now doing this kind of work, which I deny, you could divide this appropriation, if you chose to; if the Congress of the United States at any time should think it was to give one-fourth to each of these three denominational universities, after all we have heard about sectarianism through the public prints, and to give only one-fourth to the one nonsectarian institution in the District, Congress could do that; but it could not under any possibility give a like appropriation to any of these institutions. There is only one territorial entity.

But, coming back to the point I was on, under what circumstances and in what way would the Congress ever wish to change its relations to George Washington University? Only when the District legislature is ready to create a state university for the District of Columbia. Do you suppose that we would lift our fingers to prevent such a policy? If the time becomes ripe in ten years or in fifteen years for such a consummation, what do you suppose the Congress of the United States will do? Will it spend a million dollars or two million dollars for sites and buildings to create, *de novo*, a state university for the District of Columbia? I think not. If I am not hoping too much for the George Washington University, in the next ten years I see an institution that has several million dollars at least of assets, well-developed work, with 7,000 or 8,000 graduates, with a history reaching back for ninety or one hundred years. You can not get those things in a day.

Do you suppose this great Government, when it could have this university with its three or four or five or six millions of dollars of assets, with its history of one hundred years behind it, with its name, and with the good will of its 7,000 or 8,000 graduates, is going to waste two or three millions of money in creating a new institution when it would know, as it would know very quickly, that it could have George Washington University at the drop of the hat? It is absurd to imagine a condition under which George Washington University would stand in the way of the development of a state university; and it is not for us to suggest, it is for Congress to move in that matter, but I do not think I am going beyond my orders in the matter when I say that if Congress wants to do that it can have our university to-morrow. Do you not suppose that the trustees of the George Washington University to-day, or any day between now and the crack of doom, would not be delighted to have the District of Columbia make this university the university of the District of Columbia? We are not suggesting that, but as he has drawn this picture of our getting this money and in some way blocking the development of public education, I have thought it proper, on the spur of the moment, to speak what I know to be the facts on that point.

Mr. Chairman, it is said this is a private institution, and with that point I will close. We have seen that the Congress of the United States has permitted different States, until they were ready to estab-

lish state institutions, to utilize the services of institutions already existing on private foundations to do this public service. The Morrill acts do not forbid such methods; by implication they admit them—between the lines, I mean—and that has been the theory in the Interior Department, with the tacit approval of Congress, for forty years. So that here, until you are ready to create an institution for the District, we are at your service. Are we a private institution in any proper sense of the word? A church is not to be mentioned in the same category with a nonsectarian university, much less private schools which may be run for a profit. Churches stand in the character of clubs; there is a certain private character to a church. But as to universities, there is only one private university in the country, and that is in Indiana; at least it was for years. It is run for profit and doing an admirable work.

At the same time, that is a proprietary institution, or was four years ago. But a private university is almost a contradiction in terms. Now, when the State of New York and the State of Massachusetts and the State of New Jersey laid their hands on Cornell and Rutgers and the Massachusetts Institute of Technology to do this work, they provided that certain public officials should go on their boards of trustees, thereby making those institutions public servants, subject to be called to account by the state legislatures. Just so with this law; even to-day you have your hands on this institution to an extent that is not true of the relations, I believe, between the legislature of New Jersey and Princeton, and the legislature of Massachusetts and Harvard. I do not think the charter of either of those institutions gives the attorney-general of the State a right to examine the books of either of those universities, or the right to the legislature to demand an accounting by the trustees of their conduct and their finances, and all that.

I do not think their charters contain any such provisions. But our charter to-day does give Congress and the Attorney-General of the United States just that right. You have got your hands on us now. We are subject to visitation and supervision, and in so far as we are still a private institution in any real sense of the word, the very law to which objection is made this morning corrects that defect. How? It provides that four public officials shall be made members of our board of control. It is said that Cabinet officers will be too busy to be good trustees. It is probably true that the Secretary of Commerce and Labor—I am not speaking of the present Secretary—might not often be a very active trustee, but he would know enough about our affairs to be able to tell you whether we were spending the Morrill appropriation properly or not. Surely the Secretary of the Interior, who is charged with the administration of these acts, would probably be a little more active even than the first officer named, and the Secretary of Agriculture would in time become a very interested trustee of this institution.

Without taking up more of your time, I say I can see vistas of service not only to the District but to the whole country in a properly coordinated relation between the District of Columbia and this institution that is named for the time being as your instrumentality, along the lines of education in science. When you come to the Commissioner of Education, education is his business. So that by the addition of these four public officials to our board of control you

would get a close and tight grip of this institution, and we could report annually to you. I submit, therefore, that the institution becomes a public institution in every sense required by the Morrill acts. I have not had time, of course, in this impromptu fashion, not knowing exactly the form that Doctor James's statement would take, to reply to many things that he had stated. I do not know whether it is proper or not for me to make the request, but I would like to have the privilege, on future reading of his paper, to file as far as may be necessary an answer to some points I may have overlooked.

I would say, however, that Doctor James, if I understood him correctly, is mistaken in saying that we propose to pay for French and German and certain other subjects out of this money. We have made no proposal to do anything beyond what the law requires us to do.

Here is a schedule prepared by the Interior Department, giving the subjects that may be paid for out of the Morrill appropriation :

(Extracts from circular letter of instruction issued by the Interior Department.)

* * * * *

4. The funds are "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

* * * * *

7. In order that greater uniformity in the reports of treasurers may be obtained in the future, the following classification of subjects that may be included under the several schedules has been prepared, such classification to be adhered to by the treasurers of the various institutions in the preparation of their annual reports :

[The subjects printed in italics are already being taught in the George Washington University.]

SCHEDULE A.—Instruction in Agriculture.

- | | | |
|------------------|----------------------|-------------------------------|
| 1. Agriculture. | 4. Agronomy. | 7. <i>Veterinary science.</i> |
| 2. Horticulture. | 5. Animal husbandry. | 8. Poultry industry. |
| 3. Forestry. | 6. Dairying. | 9. Apiculture. |

SCHEDULE B.—Instruction in Mechanic Arts.

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|-----------------------------------|--------------------------------|------------------------|
| 1. <i>Mechanical engineering.</i> | 7. <i>Railway engineering.</i> | 13. Ceramics. |
| 2. <i>Civil engineering.</i> | 8. Experimental engineering. | 14. Stenography. |
| 3. <i>Electrical engineering.</i> | 9. Textile industry. | 15. Typewriting. |
| 4. Irrigation engineering. | 10. <i>Architecture.</i> | 16. <i>Telegraphy.</i> |
| 5. Mining engineering. | 11. <i>Machine design.</i> | 17. Printing. |
| 6. Marine engineering. | 12. <i>Mechanical drawing.</i> | 18. <i>Shop work.</i> |

SCHEDULE C.—Instruction in English Language.

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|-------------------------------|------------------------|--------------------|
| 1. <i>English language.</i> | 3. <i>Composition.</i> | 5. <i>Oratory.</i> |
| 2. <i>English literature.</i> | 4. <i>Rhetoric.</i> | |

SCHEDULE D.—Instruction in Mathematical Sciences.

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|------------------------|-----------------|----------------------|
| 1. <i>Mathematics.</i> | 2. Bookkeeping. | 3. <i>Astronomy.</i> |
|------------------------|-----------------|----------------------|

SCHEDULE E.—Instruction in Natural and Physical Sciences.

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|----------------------|------------------------|--------------------------------|
| 1. <i>Chemistry.</i> | 6. <i>Geology.</i> | 11. <i>Bacteriology.</i> |
| 2. <i>Physics.</i> | 7. <i>Mineralogy.</i> | 12. <i>Pharmacy.</i> |
| 3. <i>Biology.</i> | 8. <i>Metallurgy.</i> | 13. <i>Physical geography.</i> |
| 4. <i>Botany.</i> | 9. Entomology. | 14. <i>Meteorology.</i> |
| 5. <i>Zoology.</i> | 10. <i>Physiology.</i> | |

SCHEDULE F.—Instruction in Economic Sciences.

1. *Political economy.* 2. *Domestic economy.* 3. *Commercial geography.*

All that we have ever said is that the subjects italicized in the above list are already being taught in the George Washington University; and among these subjects French and German do not appear. We would not get a dollar that the Secretary of the Interior did not certify we were entitled to under the law. We are his servants and yours, and we can not spend that money in any way outside of the lines of the law itself. I thank you very much for your attention.

The CHAIRMAN. The committee has about ten minutes before the usual time of adjournment arrives, and I have been requested to hear Doctor Thompson briefly, and also President Brown Ayers.

STATEMENT OF W. O. THOMPSON, PRESIDENT OF THE OHIO STATE UNIVERSITY.

Mr. THOMPSON. Mr. Chairman and gentlemen, I beg to present to you this printed statement which is supposed to be a memorial drafted by President James. I have read this printed memorial and I have read his address presented to the committee this morning, and I want now, after hearing Doctor Harlan's statement, to reaffirm my allegiance to that paper. I am greatly surprised, for I respect the intelligence of Doctor Harlan, that he should have assumed here at the start, with his colored brother story, the identification of the George Washington University with the District of Columbia. I want it distinctly understood by this committee that we are not here protesting against the District of Columbia.

The CHAIRMAN. You agree, then, with Doctor James? At least, as I understand, Doctor James has said that you have no quarrel with the proposition that the District as a political entity may properly claim a share in the Morrill funds?

Doctor THOMPSON. Absolutely none, Mr. Chairman. Moreover, we will give our hearty and cordial indorsement to that principle, as a principle. What we are protesting against is the use by what has been conceded by Doctor Harlan to be a private institution. Now, I beg to say that in the State of Ohio there are four kinds of institutions. First, there is the Ohio State University, of which I happen to be president, which institution was informed this morning, through me, that we could not have the benefit of the pound rate of postage on the ground that we were not a corporation but simply an agency of the State; and upon that point George Washington University is a corporation under the act of this Congress, and takes those benefits. The other semistate institutions are corporations which the State can feed, but can neither own nor control, and which it is now doing. The third is a distinctly denominational institution which is in the State, and which we hope will be there forever, although my friends the Presbyterians are trying to become agnostics by moving over in Carnegie Hall next fall with their university.

The fourth is the private institution, so-called self-perpetuating, which elects its own trustees. Now, these are not denominational or state universities. They are private. The George Washington University here has the power of its own perpetuation, and my distin-

guished friend Doctor Harlan this morning revealed his ambition when he said, "We would be willing to become yours." I should simply insist here, gentlemen, this morning, since he has made that declaration, that he has himself conceded the point that we ought not to give our federal funds to a private, self-perpetuating institution. Now, on the point on which he differed with President James—about the sectarian control—I want to say that we all accept statements of fact when they come to us with authority. But President James's remarks were misapplied at that point. President James said, and that paper will say if you read it carefully, that it was possible for these people to do that. My friend Harlan overlooked his friends and my friends, the agnostics. He did not get them in that crowd. They could make a whole board of agnostics, or they could make a whole board of Presbyterians, if they wanted to. We do not say it requires it, but it permits that. In other words, the management of this institution is now in the hands of its own trustees. That makes it a private institution. I think Doctor Harlan has good intentions and good execution ordinarily. It is not a question of that; it is a question of what the form of this institution is, and that form is "private," as we know the term: Private close corporation.

The CHAIRMAN. I do not understand quite the distinction you are drawing. Is not the State University of Ohio under the management of its board of regents?

Doctor THOMPSON. Yes, sir; but it is not a corporation. It is an agency of the State.

The CHAIRMAN. How are those regents selected?

Doctor THOMPSON. They are appointed by the governor. The Post-Office Department refused us the pound rate of postage on the ground that we were not a corporation.

Mr. COLE. It was established by statute?

Doctor THOMPSON. Yes; it was established by statute and has no corporate powers except as they might incidentally come under the statute.

The CHAIRMAN. Has it not a right to sue and be sued as a corporation? Suppose some contractor erecting a building for the State University should default; can not the State University as a corporate body bring suit to compel the completion of the building?

Doctor THOMPSON. Not as a corporation. We have been in the Supreme Court of the United States in two cases, and they still say that we are not a corporation; and the supreme court of Ohio said, "You are not a corporation; you are simply an agency of the State." I am quoting the lawyers and the courts now; I am not giving my personal opinion. I think we ought to have that pound rate of postage, but we can not get it. However, that is foreign to this. What we know as a private institution is a close corporation that can perpetuate itself. I am glad to say that these private institutions always have done the best they know how to do, and they have done creditably in the cause of education. I do not impugn their motives, and I do not try to, but the fact is that this is a purely private institution.

In Ohio we have 15 or 20 of that kind of colleges, and we fought this thing out there, and the legislature of Ohio in regard to the disposition of this fund debated and debated for eight long years as to what they would do; and one college came in and said, "We would

like to have a part of it," and then these other colleges came in and said, "We are not denominational, and we are not sectarian, and we can take this and handle it for the State," and they wanted to divide it; and then the colored brother down at Wilberforce came in and wanted a part of it. They said, "No; we will not give it to you." Then they came up to Miami, which is founded under federal land grants, which is a corporation that the State can not control to-day and does not own, and they wanted it, but the legislature said, "No, we will not give it to you; we will not give it to any that is not really a state institution." So they organized one of their own, and now we are told we can not have the rights of a corporation because we are an agency of the State. That is the result of the issue. Ohio fought out that issue, whether they would mingle church and state, and they said, "We will not do it."

The CHAIRMAN. There was no complaint outside of Ohio about the action that the State of Ohio took in relation to the Morrill fund?

Doctor THOMPSON. So far as I know, there was none.

The CHAIRMAN. Neither the State of Illinois nor the State of Ohio nor the Federal Government came in to protest against the action taken in regard to the Morrill fund?

Doctor THOMPSON. No; but we got a pile of advice, as we always had done. We have had that fight. To-day in New York the question is coming up whether Cornell University shall become more a public institution and keep this relationship.

The CHAIRMAN. The question I have in my mind, and I think it is the question that members of the committee would like to have information upon, is this: It seems to us that in this measure there are two very simple propositions. One is whether the District of Columbia as a political entity is entitled to a share of the funds under the Morrill Acts, and in passing upon that part of this measure this Congress acts as the Congress of the United States, legislating for all the country.

Doctor THOMPSON. No question of that at all.

The CHAIRMAN. And I understood you to concede that the District is entitled to a share of the funds?

Doctor THOMPSON. We all agree to that.

The CHAIRMAN. The second proposition in this bill is this: Conceding that the District of Columbia is entitled to a share of the Morrill funds, to what institution within the District shall that fund be given—through what institution shall it be used? Now, in determining that question the Congress of the United States is acting not as the legislative body of the nation, but as the legislature of the District of Columbia, determining a purely local question, upon which of course it is glad to receive the suggestions and advice of others, but upon which ultimately it would seem as if it would have a right to exercise its own judgment.

Doctor THOMPSON. Granted, Mr. Chairman; but we also insist that as the Congress of the United States are our representatives sent here to do their duty we have a right to say to this body what we regard as wise public policy.

The CHAIRMAN. Undoubtedly.

Doctor THOMPSON. Now, our point distinctly is that wise and sound public policy would not go to private institutions, and we beg to say

that the exceptions to that rule that occurred a generation ago are exceptions that have not demonstrated their wisdom, and we beg to say that in the judgment of a number of people who are interested, if that were to occur to-day it would not occur again, and we want Congress to act in the light of progressive education and not in the light of the judgment of a generation ago.

The CHAIRMAN. May I ask you one question?

Doctor THOMPSON. Certainly.

The CHAIRMAN. Do you recognize the distinction which Doctor Harlan attempts to draw between a direct grant from the Public Treasury and a mere participation in a fund which is already provided by existing law?

Doctor THOMPSON. I recognize that he is making a formal distinction, but, as a matter of fact, it can not be made. You give the money to the institution, and while the board here undertakes to put public officials upon it in order to get the form of public recognition, gentlemen, if you knew anything about the management of colleges you would know that that was a will-o'-the-wisp.

The CHAIRMAN. The idea that Doctor Harlan's remarks suggested to my mind, and upon which I was asking your opinion, was this. A very strong point made by Doctor James was that to give this fund to George Washington University would be setting a bad precedent, that we would be almost inevitably compelled to give a similar amount elsewhere—not to divide the fund, as I understood him to say, but to give a similar amount to Georgetown University or to the Catholic University or to other institutions. If the fund we are distributing is provided for by a general law and not by a special act, does not that argument rather fall to the ground? Does it not follow that the only argument, if we should conclude to pass this act—the only appeal that other institutions could make—would be that they be given a share of this fund, as other institutions in Ohio asked for a share of the funds?

Doctor THOMPSON. Yes.

The CHAIRMAN. Each of those institutions did not come to the Federal Congress asking for an equal appropriation.

Doctor THOMPSON. No.

The CHAIRMAN. But they went to the legislature of Ohio asking for a division of the fund. Does it not follow, therefore, that all that any institution could do in the District of Columbia would be to come to Congress and ask for a share of this Morrill fund?

Doctor THOMPSON. In my opinion you could not create a second fund. In my opinion the only question there would be the division of the fund, and in my opinion, further, this all means to say that when Congress takes an action it is mighty difficult to get it rescinded or to retreat from its position or take another position. But the principle is still involved, when Congress uses as its agent a private institution, and if it can be done, that in doing that thing it is really supporting the institution; because all the work that they are doing now is simply what they are going to do. The appeal is made here for engineering. They are now doing it, and their own published statements show that they are doing it at great loss financially, and they are now asking you to help them in that matter.

There will be nothing new except one or two advanced subjects presented, and essentially they would be doing just what they are

doing now; and when you get to that proposition you get to the proposition of subsidizing an institution, and the principle would be involved, in my opinion, of helping a private institution, and I believe that public policy is going farther and farther from that. We have waked up to a lot of situations in this country in the last twenty-five years. We have in Ohio a Baptist school system. It is not because I would not want George Washington University helped nor because I would not want this District helped that I oppose this, but it is because I fear very greatly the difficulty of this Congress going to a private institution and helping it. I believe the next generation will relieve us from that thing.

I want to say one word in regard to Porto Rico and Hawaii. I hope those Territories will be helped; but if when my friend Harlan gets through with this job he goes down there and organizes a Presbyterian college and then devitalizes it by making it nonsectarian, I will oppose help going to them.

The CHAIRMAN. This committee is anxious to find out, I am sure, what is the right thing, and to do the right thing, and I believe every member of it would like to have your opinion as to just in what way the passage of this act would interfere with the cause of education in the District of Columbia. Before you answer that let me make this very brief statement, to remind you of the situation that exists here. There is not now a public institution of learning in the District of Columbia doing collegiate work. Therefore, if the District of Columbia is to get the aid of this Morrill fund at all, it must either establish, de novo, a public collegiate institution or it must use some institution already established as its agent. Until the Congress does get ready to establish a public institution in the nature of a state university, in what way would we be doing injury to the cause of education in the District or in the country at large if we used the George Washington University or Georgetown University or any of the rest of these institutions as the agent of the Government for the administration of that fund?

Doctor THOMPSON. Mr. Chairman, I regret very much making a statement of this sort, but every educator in this land knows the deplorable condition of education in the District of Columbia, and everybody knows that it is due to the fact that there is no initiative in the District itself in those matters and that it is under the direction of Congress and that the organization of Congress has been very unfortunate toward the education of this country. That is a common remark of the educators of the country, and because of those deplorable conditions here, private institutions have sprung up in one way or another, denominational institutions perhaps having a better opportunity than in other places, and they are doing the work, and it has not furthered the cause of education, and the history of education in the District of Columbia in the last ten years is a sad chapter in the history of education of the country. The brief answer to that question is this, that the further taking hold of the private institutions will hinder Congress from stimulating a system of education here which ought to be established.

The CHAIRMAN. Your answer then is, stated very plainly, that if the private institutions can be broken down——

Doctor THOMPSON. No; do not break them down.

The CHAIRMAN. I do not mean in an unfriendly way, but if they can be discouraged rather than encouraged, then Congress would be more likely to supply the need by public institutions.

Doctor THOMPSON. That friction between the two things is a mere will-o'-the-wisp. It is only a few weeks ago that an official of an Ohio institution said to me, "Doctor, we have got past the time when we were afraid of the state university. Ten years ago they said we were paralleling them and paralyzing them. But it was not true and it is not true, and the Ohio State University has given every denominational college in Ohio and every school in Ohio a new impetus; and there could not anything better happen to the District of Columbia than for us to have Congress say, "Let us have a genuine public system of education here, after wiping out these things." The truth of it is that the children of to-day are not as well educated as they ought to be, and I agree heartily with Doctor Harlan in those things.

Doctor HARLAN. May I ask a question before you sit down?

Doctor THOMPSON. Certainly.

Doctor HARLAN. You have just spoken of the denominational institutions of the District in a lump way and referred to the fact that in Ohio there is no antagonism between the state university and denominational institutions and that the two can go along parallel; at least that is the idea. I understood you a moment ago to say that we had fought this question out in Ohio, as if the question before this committee was the separation between church and state in Ohio. I would like to ask the Doctor whether he shares in the suggestion that in any sense there is an issue here between a state university for the District of Columbia and even a semidenominational institution; or, in other words, do you think that we are not sectarian in any sense?

Doctor THOMPSON. The only certain issue is the issue of private institutions being supported at federal expense. To that we are opposed.

Doctor HARLAN. No; but I am talking about your protagonist here.

Doctor THOMPSON. You talk to me, and let him answer for himself. I am very clear that it is a mistake for the State to give this aid to private institutions.

Doctor HARLAN. Answer my question, my dear sir. Are you willing to say that in any sense George Washington University is sectarian?

Doctor THOMPSON. I say it may become so. It is possible for it to become so. That is our issue.

Doctor HARLAN. How?

Doctor THOMPSON. It may become so by making itself unanimously Presbyterian in its board of trustees.

Doctor HARLAN. In this memorial here which you signed, or I suppose you signed, you state that the George Washington University is certainly a sectarian institution in the ordinary sense of that term, and has been so from the beginning. Did you sign that?

Doctor THOMPSON. That is the history of that institution.

Doctor HARLAN. The George Washington University is a sectarian university?

Doctor THOMPSON. As the successor to the Columbian University, that is what it is.

Doctor HARLAN. Ah! I will let it go at that.

Doctor THOMPSON. Let it go at that.

Mr. HAWLEY. Are we to infer from your remarks as to the remedy for the conditions which you declare exist in the District of Columbia as to educational matters, that the difficulty would be solved if there were a national university here?

Doctor THOMPSON. No, sir; that would not affect the local conditions. We are in favor of public education for the District the same as for the States, so that the children here can have the same opportunity that they have now in the States, and we would be glad to see that done in some way, but Congress never has done it.

Mr. HAWLEY. You are criticising the high schools in the District?

Doctor THOMPSON. The high schools; and there is not a college grade here of a public character, and we ought to have it. This is going to be the center of the country for a long time to come, and there ought to be a college institution here of a public character.

Mr. HAWLEY. There ought to be a university here of public character corresponding to a state university?

Doctor THOMPSON. Yes; the system is not complete without it. If George Washington University wants to say "We will surrender and give up all we have and become non est," and give it up for a "state" university, that is entirely their business and not mine; but what I insist on is that the Federal Treasury shall stand by the system of public education, and stand by it loyally, and that is what the public is interested in.

Mr. COCKS. Does George Washington University compare with Cornell as an institution to receive money?

Doctor THOMPSON. No, sir.

Mr. COCKS. That is a private institution?

Doctor THOMPSON. In a measure it is. But Cornell University was planned for that particular purpose, and Ezra Cornell, with his great land grant, carried it, and it should be stated to his credit that he maintained that land grant and made Cornell rich, whereas most of the States wasted their land grants. He did it for the purpose of developing that university. In recent years every time the legislature is in session, and every time the appropriations come up, the disposition is shown to get Cornell more and more a public institution and less and less a private institution.

Mr. COCKS. It has never been charged with being a sectarian institution?

Doctor THOMPSON. No, sir; they have been charged with being godless enough, but not sectarian. I am very much obliged to you, Mr. Chairman.

Doctor HARLAN. I hope it is a matter of record that Doctor Thompson does not assert that George Washington University is in any sense sectarian.

Doctor THOMPSON. I beg your pardon, Mr. Chairman; it is the successor to the Columbian University, and that always was sectarian.

Doctor HARLAN. He has said only that it is a successor of a denominational university. Put that down.

Doctor THOMPSON. Doctor Harlan talked about how this would become a great university for the United States; that it possessed over one hundred years of precious traditions and 7,000 alumni. He has forgotten that part of what he said.

The CHAIRMAN. The question is before the committee, and I guess the committee is capable of passing upon it. I believe that President Brown Ayers desired to be heard briefly.

**STATEMENT OF DR. BROWN AYERS, PRESIDENT OF THE
UNIVERSITY OF TENNESSEE.**

Doctor AYERS. Mr. Chairman and gentlemen, I am here simply because I happen to be honored this year with the presidency of the National Association of State Universities, and because I am convinced that the position taken by President James, and strengthened by President Thompson, is the position which the majority, if not all of the members of the National Association of State Universities, being the presidents of all the state universities of America, would take; and hence I am here simply to add my word of indorsement to what President James has said and to what President Thompson has said. To me the question has nothing to do with the question of the denominational character of the George Washington University; it is simply a question of whether public policy would be advanced by the Congress, acting as a legislature for the District of Columbia, giving the use of this Morrill fund, which the District of Columbia undoubtedly has the full right to, to a privately controlled institution. It seems to me there are only two possibilities to apply this fund to the District of Columbia in a proper way.

One is for Congress to establish an agricultural and mechanical college for the District of Columbia. Ordinarily it would do that as the legislature of the District of Columbia, in the same way that the legislatures of the respective States and Territories have established colleges to receive the Morrill funds for those States and Territories; but in view of the fact of the peculiar conditions in the District of Columbia, in view of the fact that the residents of the District of Columbia are, a large proportion of them, citizens of other States, I think Congress would be justified, as Congress, not as the legislature of the District, but as made up of representatives of all the States, in providing a special plant for the District of Columbia to receive the benefits of the Morrill acts. If, however, that can not be done either by Congress as a national representative body or by Congress acting as the legislature of the District of Columbia, it seems to me the only other alternative would be for the George Washington University, if it wishes to be the recipient of these funds, to quitclaim, as you may say, itself to the District of Columbia, and for the Government to receive it, and for George Washington University to surrender its charter, and for plans to be carried through Congress by which the trustees of that institution should be appointed by Congress or by the President, or partly by Congress and partly by the President, as I think is done in the case of the Smithsonian Institution.

It seems to me, if some such arrangement as that could be carried out that that would be the only logical thing, other than the establishment of an independent and new institution either by Congress itself acting as the national assembly or by Congress acting as the legislature of the District of Columbia. The whole point at issue is the undesirability, from the standpoint of the best modern educa-

tional thought and practice, of the funds of the National Government being given to an institution that is privately controlled by a board of trustees that is self-perpetuating, and not answerable either to Congress directly as a national body or to Congress acting as the legislature of the District of Columbia. That is the whole point at issue. I thank you.

The CHAIRMAN. We are very much obliged to you, Mr. President.

Doctor NEEDHAM. May I ask Doctor Thompson one question?

The CHAIRMAN. Doctor Thompson, will you answer Doctor Needham's question?

Doctor THOMPSON. Yes, sir.

Doctor NEEDHAM. In the matter of the organization of the corporation, will you state wherein Cornell differs from the George Washington University?

Doctor THOMPSON. I have not examined the two charters, and I would not be able to answer that question offhand. A corporation is a corporation, generally.

Doctor NEEDHAM. Cornell is a self-perpetuating body, is it not?

Doctor THOMPSON. Some of the trustees now are appointed by the governor of the State. It is a modified form of public corporation.

Doctor NEEDHAM. So far as the corporation is concerned itself, it is a self-perpetuating body?

Doctor THOMPSON. Yes, and they are proposing to surrender that power. They are discussing that. They are discussing that now, Mr. Chairman, whether they will surrender that power.

ADDITIONAL STATEMENT OF DR. EDMUND J. JAMES.

Doctor JAMES. I would like to say a word in answer to this question in regard to the manner in which these States have used this fund. I think it is true that Cornell and Rutgers have the fund, and the Massachusetts Institute of Technology has half of it. I think it is also true, and any of you who will take the trouble to look up the educational history of any of these States I think will agree with me, that no one of the States would think to-day, if they were not entangled by the enactments of forty years ago, and entering into the arrangements that were then made in some of the States. Connecticut gave the fund to Yale, and then she took it away. Why did she take it away? Because Yale University, one of the greatest institutions in this or any other country, was not organized to do this work properly, and wasted the fund, and misapplied. Rhode Island gave it to Brown University, and she had to take it away, because Brown University, one of the greatest institutions in this country or any other country, did not understand the problems, and misapplied and wasted the funds.

The State of Massachusetts gave the fund to Harvard, and the same thing happened there. Why? Because it, with its equipment and its ideas, was not capable of administering this fund properly. The same thing would be true in this case if the funds were given to George Washington University. I thank you, gentlemen, for giving us this hearing, and I will ask you only to take a little time to look into the truth of these statements made in this inquiry. I stand by every statement made in that memorial: the documents are there, and

if you will take the trouble to look through the published proceedings of the board of trustees of the George Washington University, and the official announcements published broadcast all over the country, you will find there is not a single statement I have made that is not substantiated.

The CHAIRMAN. Unless there is something further, or unless you wish to say something, Doctor Needham, I think the committee must adjourn.

Doctor NEEDHAM. I hope that I shall have the privilege some time of replying. That is all I wish to say.

The CHAIRMAN. Could you make a statement in about five minutes that would be satisfactory to yourself?

Doctor NEEDHAM. I can not do it justice in that time, Mr. Chairman.

The CHAIRMAN. The committee has given a great deal of time to your presentation of the case.

Doctor NEEDHAM. You will see that attacks have been made upon the administration and the organization of the institution, and in order to explain that satisfactorily it would take me a few minutes to do it.

Doctor THOMPSON. There have been intimations that questions of fact have been involved this morning. Here is petition and rejoinder, and it seems to me that at the end a rejoinder should have the opportunity to come in. I would be glad to hear Doctor Needham, but I think in case he is heard we should be allowed to submit a rejoinder, at least, to those facts he may bring forward.

The CHAIRMAN. It is just the fact that Doctor Needham's statement might call for a rejoinder that led me to suggest that that statement be made very brief, and which leads me now to suggest that it be submitted in the form of a written brief. The committee simply has not time this morning to remain any longer. Matters are on the floor of the House which every member of the committee is very much interested in, and much as we regret to limit your time, at all, yet in view of the very full and complete statement of your case which was made at a former hearing, and in view of the permission which has just been suggested to submit a written brief, we really do not feel as if we were doing any injustice.

Doctor NEEDHAM. Of course you will all concede that in submitting a written statement I could not anticipate what would be in the minds of the committee, which would come out if I was making an oral statement before you. I am not pressing, Mr. Chairman, for time. I simply say that I am here to meet every statement that has been made, from the record, and to show that so far as it is possible for any great movement to be consistent, the movement of this institution has been consistent in the last eight years and has received the commendation of some of the best educators of the country, and that in the administration of its affairs it stands in some respects without a parallel in this country.

I have a statement here which I will be very glad to submit, showing the percentage of the tuition of the student which is paid for by his tuition fees. In Harvard it is 25 per cent, in Cornell 32 per cent, in the University of Michigan 29 per cent, in Princeton 27 per cent, in Williams 43 per cent, in Columbia 34 per cent, in the Massachusetts Institute of Technology 51 per cent, in Yale 42 per cent, in

the University of Pennsylvania 42 per cent, and in George Washington University last year, when we were bearing the very heavy expense of doing this very work, it was 52.5 per cent. In other words, there is not an institution in this country to-day that is paying as much of the education of its students with the tuition fees as we are, and our tuition fees are lower than those of any other institution excepting Cornell, which are \$100, while ours are \$150.

The CHAIRMAN. Permit me to state, Doctor, that when the committee comes to consider this bill, if there is any question as to facts, we understand that you are always subject to our call and can supply the information, and I think I can assure you that the committee will not hesitate to call upon you in case it thinks that there is any question concerning which it has not full information.

Doctor NEEDHAM. I wish to say that that is entirely satisfactory to me.

(At 12.45 o'clock p. m. the committee adjourned.)

ACTS OF CONGRESS, ACT OF THE LEGISLATIVE ASSEMBLY OF THE DISTRICT OF COLUMBIA, AND CERTIFICATE OF CHANGE OF NAME OF THE COLUMBIAN UNIVERSITY TOGETHER FORMING ON MAY 1, 1909, THE CHARTER OF THE GEORGE WASHINGTON UNIVERSITY.

AN ACT To incorporate the Columbian College in the District of Columbia.

Be it enacted, &c., That there be erected, and hereby is erected and established, in the District of Columbia, a college, for the sole and exclusive purpose of educating youth in the English, learned, and foreign languages, the liberal arts, sciences, and literature; the style and title of which shall be, and hereby is declared to be, "The Columbian College in the District of Columbia."

SEC. 2. *And be it further enacted,* That the said college shall be under the management, direction, and government of a number of trustees, not exceeding thirty-one, to be elected triennially, by the contributors to the said college, qualified to vote, in such manner, and under such limitations and restrictions, as may be provided by the ordinances of the college, on the first Monday in May; and that the first trustees of the said college shall consist of the following persons, viz: Obadiah B. Brown, Luther Rice, Enoch Reynolds, Josiah Meigs, Spencer H. Cone, Daniel Brown, Return J. Meigs, Joseph Gibson, Joseph Cone, Thomas Corcoran, Burgis Allison, Thomas Sewall, and Joseph Thaw, which said trustees, and their successors, shall forever hereafter be, and they are hereby declared to be, one body politic and corporate, with perpetual succession, in deed and in law, to all intents and purposes whatsoever, by the name, style, and title of "The Columbian College in the District of Columbia;" by which name and title they, the said trustees and their successors, shall be competent and capable, at law and in equity, to take to themselves and their successors, for the use of the said college, any estate, in any messuage, lands, tenements, hereditaments, goods, chattels, money, and other effects, by gift, grant, bargain, sale, conveyance, assurance, will, devise, or bequest, of any person or persons whatsoever: *Provided,* The same do not exceed, in the whole, the yearly value of twenty-five thousand dollars; and the same messuages, lands, tenements, hereditaments, and estate, real and personal, to grant, bargain, sell, convey, assure, demise, and to farm let, and place out on interest, for the use of the said college, in such manner as to them, or at least nine of them, shall seem most beneficial to the institution, and to receive the rents, issues, and profits, income and interest of the same, and to apply the same to the proper use and benefit of the said college; and by the same name to sue, commence, prosecute, and defend, implead, and be impleaded in any courts of law and equity, and in all manner of suits and actions whatsoever, and generally, by and in the same name, to do and transact all and every the business touching or concerning the premises.

SEC. 3. *And be it further enacted,* That the said trustees shall cause to be made for their use one common seal, with such devices and inscriptions thereon as they shall think proper, under and by which all deeds, diplomas, certificates,

and acts of the said college, shall pass and be authenticated; and the same seal, at their pleasure, to break and devise a new one.

SEC. 4. *And be it further enacted*, That the said trustees, or five of them at least, shall meet at the college, on College Hill, in the said District of Columbia, on the first Monday in March next, for the purpose of concerting and agreeing to such business as, in consequence of this act, shall be proper to be laid before them at the commencement of the work they have undertaken, and shall have power to adjourn from time to time, as they shall see cause, to any other times or places, for the purpose of perfecting the same. That there shall be a stated meeting of the said trustees held twice in every year at least, at such place and time as the said trustees, or a quorum thereof, shall appoint, of which public notice shall be given, after the first meeting, at least twenty days before [the] time of such intended meeting, whenever the president, to be appointed by them, shall deem the business of the institution to require the same, and give due notice thereof, which he is hereby authorized to do; and if, at such stated or occasional meetings, five of the said trustees shall not be present, those of them who shall be present shall have power to adjourn the meeting to any other day, as fully and effectually, to all intents and purposes, as if the whole number of trustees for the time being were present; but, if five or more of the said trustees shall meet at the said appointed times, or at any other time of adjournment, then such five of the said trustees shall be a board or quorum, and a majority of the votes of them shall be capable of doing and transacting all the business and concerns of the said college not otherwise provided for by this act; and particularly of making and enacting ordinances for the government of the said college; of electing and appointing the president, professors, and tutors, for the said college; of agreeing with them for their salaries and stipends, and removing them for misconduct, or breach of the laws of the institution; of appointing committees of their own body to carry into execution all and every the resolutions of the board; of appointing a president, treasurer, secretary, stewards, managers, and other necessary and customary officers, for taking care of the estate and managing the concerns of the corporation; and, generally, a majority of voices of the board, or quorum of the said trustees, consisting of five persons at least, at any semi-annual, occasional, or adjourned meeting, after notice given as aforesaid, shall determine all matters and things (although the same be not herein particularly mentioned) which shall occasionally arise, and be incidentally necessary to be determined and transacted by the said trustees: *Provided always*, That no ordinances shall be of force which shall be repugnant to this charter, or to the laws of the District of Columbia.

SEC. 5. *And be it further enacted*, That the head or chief master for the said college shall be called and styled "The president," and the masters thereof shall be called "Professors and tutors;" but neither president, professors, or tutors, while they remain such, shall ever be capable of the office of trustee.

SEC. 6. *And be it further enacted*, That the president, professors, and tutors, or a majority of them, shall be called and styled "The faculty of the college," which faculty shall have the power of enforcing the rules and regulations adopted by the trustees for the government of the pupils, by rewarding or censuring them, and, finally, by suspending such of them as after repeated admonitions shall continue disobedient and refractory, until a determination of a quorum of the trustees can be had; and of granting and confirming, by and with the approbation and consent of a board of the trustees, signified by their mandamus, such degrees in the liberal arts and sciences, to such pupils of the institution, or others, who, by their proficiency in learning, or other meritorious distinction, they shall think entitled to them, as are usually granted and conferred in colleges; and to grant, to such graduates, diplomas or certificates, under their common seal, and signed by the faculty, to authenticate and perpetuate the memory of such graduation.

SEC. 7. *And be it further enacted*, That persons of every religious denomination shall be capable of being elected trustees; nor shall any person, either as president, professor, tutor, or pupil, be refused admittance into said college, or denied any of the privileges, immunities, or advantages thereof, for or on account of his sentiments in matters of religion.

SEC. 8. *And be it further enacted*, That no misnomer of the said corporation shall defeat or annul any gift, grant, devise, or bequest, to or from the said corporation: *Provided*, The intent of the parties shall sufficiently appear upon the face of the gift, grant, will, or other writing, whereby any estate or interest was intended to pass to or from the said corporation.

SEC. 9. *And be it further enacted*, That the constitution of the said college, herein and hereby declared and established, shall be, and remain, the inviolate

constitution of the said college forever; and the same shall not be altered, or alterable, by any ordinance or law of the said trustees: *Provided*, That it may be lawful for the Congress of the United States to revoke and repeal this act, at any and at all times whenever they shall think fit so to do.

SEC. 10. *And be it further enacted*, That it shall be the duty of the said board of trustees to keep a regular book or journal, in which shall be entered, under their direction, besides an account of all their ordinary acts and proceedings, all the by-laws, ordinances, rules, and regulations, which may be adopted by the said board, for their own government, and for the government of the institution; also, a schedule of all the property and effects, real, personal, or mixed, which shall or may be vested in the said trustees, for the use of the said college, by virtue of any gift, grant, bargain, sale, will, or otherwise, together with annual statements concerning the accounts and finances of the institution. That it shall, moreover, be the duty of the said trustees to cause to be enrolled, in the said book or journal, the names of all the contributors to the institution qualified to vote for trustees, with their respective places of residence; and the said book or journal shall at all times be open to the inspection or examination of the Attorney-General of the United States; and, when required by either House of Congress, it shall be the duty of said trustees to furnish information respecting their own conduct, the state of the institution, and of its finances, which shall or may be so required.

SEC. 11. *And be it further enacted*, That in case any vacancy or vacancies shall happen in the board of trustees aforesaid, by death, inability, resignation, or otherwise, at any time between the stated or triennial elections, that then it shall and may be lawful for the other trustees, or any five of them, to proceed, at any subsequent meeting after the happening of such vacancy or vacancies, to choose, by ballot, any suitable person or persons to fill the same.

SEC. 12. *And be it further enacted*, That the employment or application of the funds or income of the said corporation, or any part thereof, for any purpose or object other than those expressed and defined in the first section of this act, or the investment thereof in any other mode than is described and provided in the second section thereof, shall be deemed and taken to be a forfeiture of all the rights and immunities derived from this act, and the same shall, thenceforth, cease and become null and void. (U. S. Stat. L., vol. 6, pp. 255-258; 16th Cong., 2d sess., ch. 10.)

Approved, February 9, 1821.

AN ACT Granting certain city lots to the corporation of the Columbian College for the purposes therein mentioned.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there shall be, and hereby are, granted to the Columbian College, in the District of Columbia, lots in the city of Washington, to the amount, in value, of twenty-five thousand dollars; which said lots shall be selected and valued by the commissioner of the public buildings, when requested by the trustees of the said college; and when the said lots shall be so selected and valued, the same shall be vested in the said corporation in fee simple, to be by them held and disposed of in the manner following, that is to say: The said corporation, by proper and lawful act or acts, under their corporate seal, shall sell and dispose of the said lots as soon as reasonably practicable, for the best price or prices they can obtain; and shall vest the proceeds of the same in some public stock, or in stock of some incorporated bank.

SEC. 2. *And be it further enacted*, That, when the lots aforesaid shall be selected and valued as aforesaid, the said commissioner shall make return of the numbers and description thereof to the clerk of the circuit court of the county of Washington, to be by him recorded among the records of land titles in the said county.

SEC. 3 *And be it further enacted*, That the proceeds of the sales aforesaid, so to be vested, shall not be otherwise used by the said trustees than as a capital, to be by them forever hereafter kept vested as aforesaid; and the dividends or interest therefrom accruing shall, by them, be used and applied in aid of the other revenues of the said college, to the establishment and endowment of such professorships therein as now are, or hereafter shall be, established by the said trustees; and to and for no other purpose whatever. (U. S. Stat. L., vol. 4, pp. 603-604; 22d Cong., 1st sess., ch. 248.)

Approved, July 14, 1832.

AN ACT Supplemental to the "Act granting certain city lots to the corporation of the Columbian College for the purposes therein mentioned," approved the fourteenth day of July, eighteen hundred and thirty-two.

Be it enacted, &c., That the corporation of the Columbian College be, and hereby is, authorized to sell so many of the city lots, granted to said corporation by the act to which this is supplemental, as shall be sufficient to raise the sum of seven thousand dollars, and to apply the proceeds of such sale to the payment of debts due from said corporation, anything in the act to which this is supplemental to the contrary notwithstanding. (U. S. Stat. L., vol. 6, p. 751; 25th Cong., 3d sess., ch. 34.)

Approved, February 28, 1839.

AN ACT For the relief of the Columbian College, in the District of Columbia.

*Be it enacted by the legislative assembly of the District of Columbia,** That the Columbian College, in the District of Columbia chartered by and organized and acting under the act of Congress approved February nine, eighteen hundred and twenty-one, may, from the proceeds of any sale of its property, apply such sum as may be needful to pay its present indebtedness and place its libraries, buildings, and apparatus of instruction in good condition, and execute all deeds needful to quiet the title of property already sold.

SEC. 2. *And be it further enacted,* That the trustees of said college elected in May last shall constitute the corporation of said college until their successors in office shall be chosen and qualified as hereinafter provided, and may, until then, as vacancies occur in their number, temporarily fill them by the election of fit persons residing in the District of Columbia.

SEC. 3. *And be it further enacted,* That the said trustees shall meet in the law building of said college at noon, on the twenty-fifth day of June, eighteen

*The legislative assembly of the District of Columbia had its existence under the provisions of "An act to provide a government for the District of Columbia," approved February 21, 1871. (U. S. Stat. L., vol. 16, pp. 419-429; 41st Cong., 3d sess., ch. 62.)

This act read, in part, as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all that part of the territory of the United States included within the limits of the District of Columbia be, and the same is hereby, created into a government by the name of the District of Columbia, by which name it is hereby constituted a body corporate for municipal purposes, and may contract and be contracted with, sue and be sued, plead and be impleaded, have a seal, and exercise all other powers of a municipal corporation not inconsistent with the Constitution and laws of the United States and the provisions of this act.

SEC. 2. *And be it further enacted,* That the executive power and authority in and over the District of Columbia shall be vested in a governor, who shall be appointed by the President, by and with the advice and consent of the Senate, and who shall hold his office for four years and until his successor shall be appointed and qualified. * * *

SEC. 3. *And be it further enacted,* That every bill which shall have passed the council and house of delegates shall, before it becomes a law, be presented to the governor of the District of Columbia; if he approve, he shall sign it. * * *

SEC. 5. *And be it further enacted,* That legislative power and authority in said District shall be vested in a legislative assembly, as hereinafter provided. The assembly shall consist of a council and house of delegates.

SEC. 7. *And be it further enacted,* That all male citizens of the United States above the age of twenty-one years, who shall have been actual residents of the District for three months prior to the passage of this act, except such as are *non compos mentis* and persons convicted of infamous crimes, shall be entitled to vote at said election, in the election district or precinct in which he shall then reside and shall have so resided for thirty days immediately preceding said election, and shall be eligible to any office within the said District, and for all subsequent elections twelve months' prior residence shall be required to constitute a voter; but the legislative assembly shall have no right to abridge or limit the right of suffrage. * * *

SEC. 18. *And be it further enacted,* That the legislative power of the District shall extend to all rightful subjects of legislation within the District, consistent

hundred and seventy-two, for the purpose of choosing, and shall then and there, or at the time and place to which said meeting may be adjourned, elect thirteen trustees and thirteen overseers, who shall, upon their election, constitute the college corporation, and they and their successors shall thenceforward be, and be known and recognized as, the Columbian College in the District of Columbia.

SEC. 4. *And be it further enacted*, That the trustees chosen at the said meeting in June, eighteen hundred and seventy-two, or who may thereafter be chosen, shall be residents of the District of Columbia, and that at said meeting, and at any annual meeting of trustees and overseers to be thereafter held in said city of Washington on the Tuesday next preceding the last Wednesday in June annually, the trustees and overseers in convention assembled shall fill vacancies in their board, and shall, by ballot, elect from among the trustees two suitable persons, one to be president and the other to be treasurer and secretary of said corporation and of the board of trustees, and shall establish ordinances and by-laws, or alter or repeal the same; and also frame laws and regulations for the college faculty and students in all the departments thereof, and by ballot elect such teachers, tutors, professors, lecturers, and president, and with such salaries and duties as said corporation may deem proper.

SEC. 5. *And be it further enacted*, That at said annual meetings not less than seven trustees and three overseers shall constitute a quorum for the transaction of any business except adjournment, and adjournment may be made by any number present; *Provided*, That a final adjournment shall not be delayed beyond one week after the time fixed for the annual meeting.

SEC. 6. *And be it further enacted*, That during the interval between said annual meetings the trustees shall, as now, hold semi-annual, quarterly, monthly, and occasional meetings to fill temporarily, as the case may require, vacancies in the faculty or in their own board, and with all their present powers as modified by this act, subject to the ordinances and by-laws of the corporation; but no real estate or other property of said corporation shall, after the twenty-fifth day of June, eighteen hundred and seventy-two, be disposed of by the trustees, except by vote of the corporation or in pursuance of its ordinances. (Laws of the District of Columbia, 1871-1872, pt. 2, pp. 21, 22. Acts of the First Legislative Assembly of the District of Columbia, 1st sess., ch. 18.)

Approved, July 25, 1871.

with the Constitution of the United States and the provisions of this act, subject, nevertheless, to all the restrictions and limitations imposed upon States by the tenth section of the first article of the Constitution of the United States; but all acts of the legislative assembly shall at all times be subject to repeal or modification by the Congress of the United States, and nothing herein shall be construed to deprive Congress of the power of legislation over said District in as ample manner as if this law had not been enacted. * * *

SEC. 28. *And be it further enacted*, That the said legislative assembly shall have power to create by general law, modify, repeal, or amend, within said District, corporations aggregate for religious, charitable, educational, industrial, or commercial purposes, and to define their powers and liabilities: *Provided*, That the powers of corporations so created shall be limited to the District of Columbia. * * *

SEC. 34. *And be it further enacted*, That a delegate to the House of Representatives of the United States, to serve for the term of two years, who shall be a citizen of the United States and of the District of Columbia, and shall have the qualifications of a voter, may be elected by the voters qualified to elect members of the legislative assembly, who shall be entitled to the same rights and privileges as are exercised and enjoyed by the delegates from the several Territories of the United States to the House of Representatives, and shall also be a member of the Committee for the District of Columbia.

The form of government by a governor and legislative assembly, with a Delegate in Congress, was abolished by "An act for the government of the District of Columbia, and for other purposes," approved June 20, 1874. (U. S. Stat. L., vol. 18, pp. 116-121; 43d Cong., 1st sess., ch. 337.) By this act a form of government by a commission, consisting of three persons appointed by the President of the United States, by and with the advice and consent of the Senate, was instituted; and this form of government was continued, with some changes, by "An act providing a permanent form of government for the District of Columbia," approved June 11, 1878 (U. S. Stat. L., vol. 20, pp. 102-108; 45th Cong., 2d sess., ch. 180), which is the organic act of the District.

AN ACT Supplemental to the act of February ninth, eighteen hundred and twenty-one, incorporating the Columbia[n] College, in the District of Columbia.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to incorporate the Columbia[n] College in the District of Columbia, approved February ninth, eighteen hundred and twenty-one, be, and the same is hereby, so modified that said corporation shall be hereafter known and called by the name of the Columbia[n] University, and in that name shall take, hold, and manage all the estate and property now belonging to said college, or that may hereafter be conveyed, devised, or bequeathed to said corporation by its original name; that the restriction of the yearly value of the property of the said corporation to the sum of twenty-five thousand dollars be, and the said restriction is hereby, repealed; and that said corporation may increase the number of its overseers to twenty-one and the number of its trustees to twenty-one, exclusive of the president of the faculty, who shall be *ex officio* a trustee of said corporation.

SEC. 2. That the act for the relief of the Columbian College in the District of Columbia, enacted by the legislative assembly of said District, and approved July twenty-fifth, eighteen hundred and seventy-one, be, and the same is hereby, approved and confirmed: *Provided*, That this act nor the said act of the legislative assembly of the said District shall be so construed as to authorize the said Columbian University to sell, or use the proceeds of any sale of land granted by Congress to said institution for any purpose other than that expressed in the act of incorporation and the act granting any such land or real estate, or contrary to any will, devise, or grant of any land or real estate heretofore or hereafter made, by any person or persons to said institution. (U. S. Stat. L., vol. 17, p. 629; 42d Cong., 3d sess., ch. 328.)

Approved, March 3, 1873.

AN ACT Supplementary to the act of March third, eighteen hundred and seventy-three, entitled "An Act supplemental to the act of February ninth, eighteen hundred and twenty-one, incorporating Columbia[n] College, District of Columbia."

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act of March third, eighteen hundred and seventy-three, ratifying and confirming the act for the relief of Columbian College, in the District of Columbia, enacted by the legislative assembly of the said District, and approved July twenty-fifth, eighteen hundred and seventy-one, be so modified as to authorize the trustees and overseers of the Columbian University to hold their annual meeting on such day in May or June as the said trustees and overseers shall appoint, instead of being held on "the Tuesday next preceding the last Wednesday in June." (U. S. Stat. L., vol. 20, p. 88; 45th Cong., 2d sess., ch. 147.)

Approved, May 31, 1878.

AN ACT To amend the Act of March third, eighteen hundred and seventy-three, for the Relief of the Columbian University, in the District of Columbia.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act approved March third, eighteen hundred and seventy-three, entitled "An act supplemental to the act of February ninth, eighteen hundred and twenty-one, incorporating the Columbian College, in the District of Columbia" be, and the same is, so modified that hereafter the treasurer and secretary of said corporation, the Columbian University, need not be one person nor a member of the trustees of said corporation, but the trustees and overseers of said corporation, in convention assembled, shall annually elect by ballot two suitable persons from among the trustees or not, as they may deem proper, one to be treasurer and the other secretary of said corporation, and of the board of trustees.

SEC. 2. That in case of the death, resignation, or inability to act of either the treasurer or secretary, the board of trustees shall have power to fill the vacancy until his successor is duly elected. (U. S. Stat. L., vol. 27, p. 420; 52d Cong., 2d sess., ch. 38.)

Approved, January 14, 1893.

AN ACT Supplemental to the Act of February ninth, eighteen hundred and twenty-one, incorporating the Columbian College in the District of Columbia, and the Acts amendatory thereof.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Columbian University, on and after the first day of June, eighteen hundred and ninety-eight, shall be under the management and control of a board of trustees, consisting of twenty-two members; the president of the university shall be ex officio a member of said board, and the remaining twenty-one shall be divided into three classes with seven members in each class; a majority of said board shall be residents of the District of Columbia, and seven members shall constitute a quorum for the transaction of business. That on or before the thirty-first day of May, eighteen hundred and ninety-eight, a meeting of the trustees and overseers of said university shall be held, and said meeting shall elect twenty-one trustees, seven of whom shall be designated to serve from the first day of June, eighteen hundred and ninety-eight, until the annual meeting in eighteen hundred and ninety-nine; and seven from the same date until the annual meeting in nineteen hundred; and seven until the annual meeting in nineteen hundred and one. Two-thirds of said trustees, and also the president of the university, shall be members of regular Baptist churches; that is to say, members of churches of that denomination of Protestant Christians now usually known and recognized under the name of the regular Baptist denomination; said trustees so elected shall serve for the periods mentioned and until their successors are elected. That on the first day of June, eighteen hundred and ninety-eight, the terms of office of the present trustees and overseers shall cease and determine, and thereupon the control and management of said university, its property and trusts, shall vest in the board of trustees elected as hereinabove provided and their successors.

SEC. 2. That at the annual meeting in eighteen hundred and ninety-nine, and annually thereafter, there shall be elected by the board of trustees seven trustees to fill the places of the class whose terms of office expire; and the board of trustees may prescribe in a by-law the mode of nominating persons for election as trustees. A failure to elect trustees at the annual meeting shall not create vacancies in the board, but such election may be had and vacancies occurring during the year may be filled for the unexpired term by the board at any general or special meeting.

SEC. 3. That the board of trustees provided for herein shall have, and they are hereby given, full power and authority to appoint and remove any and all officers, professors, lecturers, teachers, tutors, agents, and employees who are now or may hereafter be elected or appointed; they may, by a vote of two-thirds of all the trustees constituting said board, adopt and change by-laws for the conduct of the business and educational work of said university; they may appoint an executive committee composed of trustees, designate the number and chairman thereof, with such powers and authority as are usually exercised by an executive committee, and, which shall be conferred by the board, subject always to the control of the board of trustees; they may create and establish schools and departments of learning to be connected with and become a part of said university; they may receive, invest, and administer endowments and gifts of money and property for the maintenance of educational work by said university, and by any department and chair thereof now established or which may hereafter be created or established by said university; and they shall have all the powers and authority heretofore granted to and vested in the trustees and overseers of said university.

SEC. 4. That the annual meeting of the board of trustees shall be held in the city of Washington, District of Columbia, on the Wednesday nearest the first day of June in each year; two other stated meetings shall be held on the second Wednesday of October and January in each year, and special meetings may be called by the president of the university or by the executive committee or by seven members of the board of trustees upon such notice and at such hour and place as may be designated in the by-laws; at all meetings any business necessary to be transacted may be considered and acted upon, and any meeting may be adjourned from time to time by the trustees present, whether constituting a quorum or not, notice of such adjournment to be given, as of called meetings, to those trustees not present.

SEC. 5. That the terms of office of the president of the university, the treasurer and other officers, professors, and lecturers, and the employment of agents and employees, and the title to all the property and rights in and management

of the endowment funds of the university shall not be affected by the change of management herein provided for, but they shall continue and be subject to the control and management of the board of trustees hereby created the same as they are now subject to the control and management of the corporation.

SEC. 6. That all acts and parts of acts inconsistent with the provisions of this act are hereby repealed. (U. S. Stat. L., vol. 30, pp. 328, 329; 55th Cong., 2d sess., ch. 72.)

Approved, March 18, 1898.

AN ACT Supplemental to the act of February ninth, eighteen hundred and twenty-one, incorporating the Columbian College, in the District of Columbia, and the acts amendatory thereof.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to incorporate the Columbian College, in the District of Columbia, approved February ninth, eighteen hundred and twenty-one, and the amendatory act approved March eighteenth, eighteen hundred and ninety-eight, be, and the same are hereby, amended by repealing and striking out of the said charter the following words in lines twenty to twenty-five in section one of the said amendatory act of March eighteenth, eighteen hundred and ninety-eight, namely, "Two-thirds of said trustees, and also the president of the university, shall be members of regular Baptist churches; that is to say, members of churches of that denomination of Protestant Christians now usually known and recognized under the name of the regular Baptist denomination."

SEC. 2. That section thirteen of the original charter of February ninth, eighteen hundred and twenty-one, which provides "That persons of every religious denomination shall be capable of being elected trustees; nor shall any person, either as president, professor, tutor, or pupil be refused admittance into said college or denied any of the privileges, immunities, or advantages thereof for or on account of his sentiments in matters of religion," be, and the same is hereby, reenacted and shall be hereafter in full force as a part of said charter.

SEC. 3. That power is hereby given to the board of trustees of said university to change the name of said university at any regular meeting by a vote of not less than two-thirds of the total number of members of the board, as prescribed by the charter, subject to the approval of the Secretary of the Interior and the Commissioner of Education. That upon said action being taken a certificate, under the seal of the university, stating the name adopted and the date when the name shall go into effect not less than thirty days nor more than six months from the date of its adoption, together with the fact that said name has been adopted as herein prescribed, shall be filed in the office of the recorder of deeds of the District of Columbia, and thereupon, upon the date specified for the name to go into effect, the university shall be known and designated by the name adopted, and by said new name the said university shall be vested with and convey its real estate, hold, control, and administer endowments and gifts of money and property heretofore and hereafter made for the maintenance of its educational work and do and perform all acts which it now has the power to do under its said charter. Such change of name shall not in any other way change, affect, or modify in any degree the rights, privileges, obligations, and powers of the said university under the charter of February ninth, eighteen hundred and twenty-one, and the amendatory acts thereto.

SEC. 4. That all acts and parts of acts inconsistent with this act are hereby repealed. (U. S. Stat. L., vol. 33, pt. 1, pp. 7, 8; 58th Cong., 2d sess., ch. 7.)

Approved, January 23, 1904.

CERTIFICATE OF CHANGE OF NAME OF THE COLUMBIAN UNIVERSITY TO "THE GEORGE WASHINGTON UNIVERSITY."

DISTRICT OF COLUMBIA,
City of Washington:

The Columbian University, in accordance with the act of Congress approved January 23, 1904, does hereby certify that, at the regular meeting of its board of trustees duly held on the eighth day of June, 1904, at which meeting there were present more than two-thirds of the total number of members of the board.

It was unanimously resolved that, subject to the approval of the Secretary of the Interior and the Commissioner of Education, prescribed by said act of Congress, the name of this university be changed to that of The George Washington University, the same to go into effect on the first day of September, A. D. 1904.

And it is hereby further certified, that on the twentieth day of June, A. D. 1904, the Secretary of the Interior and the Commissioner of Education duly approved in writing said change of name, which said written approval is hereto attached and made a part hereof.

In testimony whereof, said Columbian University has given this its certificate under its corporate seal, at the city of Washington, D. C., on the twenty-first day of June, A. D. 1904.

CHARLES W. NEEDHAM, *President.*

Attest:

JOHN B. LARNER, *Secretary.*

(Corporate seal.)

UNITED STATES OF AMERICA, DEPARTMENT OF THE INTERIOR,
Washington, D. C., June 20, 1904.

Pursuant to section 882 of the Revised Statutes, I hereby certify that the annexed paper is a true copy of the original as it appears upon the files of the department.

In testimony whereof, I have hereunto subscribed my name, and caused the seal of the Department of the Interior to be affixed, the day and year first above written.

E. A. HITCHCOCK,
Secretary of the Interior.
W. B. A.

(Seal of the Department of the Interior.)

Whereas by act of Congress approved January 23, 1904, the Columbian University was authorized to change its name, subject to the approval of the Secretary of the Interior and the Commissioner of Education;

And whereas it has been made satisfactorily to appear to us that at the regular meeting of the board of trustees of said university held on the eighth day of June, A. D. 1904, at which meeting there were present more than two-thirds of the total number of members of said board, it was unanimously resolved to change the name of said university to that of The George Washington University, the same to go into effect on the first day of September, A. D. 1904:

Now therefore this is to witness that, pursuant to said act of Congress, we do hereby, this twentieth day of June, A. D. 1904, approve said change of name.

E. A. HITCHCOCK,
Secretary of the Interior.
W. T. HARRIS,
Commissioner of Education.

(Seal of the Department of the Interior.)

OFFICE OF THE RECORDER OF DEEDS, DISTRICT OF COLUMBIA.

This is to certify that the foregoing is a true and verified copy of the certificate of change of name of the Columbian University to The George Washington University, and of the whole of said certificate of change of name, as filed in this office the 22d day of June, 1904, and recorded in Liber No. 16, folio 95 et seq., one of the incorporation records of the District of Columbia.

In testimony whereof I have hereunto set my hand and affixed the seal of this office this 11th day of February, A. D. 1910.

R. W. DUTTON,
Deputy Recorder of Deeds, D. C.

(Seal of the recorder of deeds, District of Columbia.)

AN ACT Supplemental to the act of February ninth, eighteen hundred and twenty-one, incorporating the Columbian College in the District of Columbia, and the acts amendatory thereof.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the George Washington University shall have, and is hereby given, power to increase the number of its

trustees from time to time, by a two-thirds vote of the whole number of the trustees at the time such vote is taken, to a number not exceeding forty-five. In case of the increase of the number of trustees a certificate, stating the number of the board and the time when it shall go into effect and that the action so taken was by a two-thirds vote as required by this act, shall be filed with the recorder of deeds of the District of Columbia, and upon and after the date named the board shall consist of the number of trustees stated in such certificate, and said board may also appoint a board or boards of visitors for any department or departments of educational work carried on by the university, such boards of visitors to be advisory only.

SEC. 2. That by and with the consent of said university, colleges may be organized hereunder for the purpose of carrying on, in connection with the university, special lines of educational work in the arts, sciences, and liberal and technical knowledge, such colleges to be educationally a part of the system of the university, but upon independent financial foundations, and to this end any five or more persons desirous of associating themselves for the purpose of establishing a college hereunder, may make, sign, and acknowledge before any officer authorized to take acknowledgment of deeds in the District of Columbia, and with the assent of the university in writing, file in the office of the recorder of deeds of the said District a certificate in writing, in which shall be stated: First, the intention to organize a corporation under this act and the assent of the university thereto; second, the name or title by which the college shall be known in law; third, the names of the trustees constituting the first board, and such trustees may be divided into three classes, the term of office of one class expiring annually; fourth, the manner of nominating and electing successors to said trustees; fifth, the branch or branches of literature, arts, science, liberal or technical knowledge proposed to be taught; sixth, that the highest officer of said college shall be a dean, the dean and members of the faculty to be members of the educational councils of the university in accordance with the rules governing the university; seventh, that all degrees shall be bestowed by the university; eighth, that in all financial and legal responsibility the college shall be an independent organization. Upon filing such certificate the trustees named therein and their successors shall be a body politic, incorporated by the name and style stated in the certificate, and by that name and style shall have perpetual succession in association with the university, with power in the college to sue and be sued; plead and be impleaded; to acquire, hold, and convey property in all legal ways; to receive by gift, devise, or otherwise, and hold, control, and administer endowments and gifts of money and property thereafter made to it for the maintenance of its educational work; to have and use a common seal, and to alter and change the same at pleasure; to make and alter from time to time such by-laws, not inconsistent with the Constitution of the United States or the laws in force in said District or the laws of the university regulating the conduct of educational work, as may be deemed necessary for the government of the college, but said college shall not confer academic or honorary degrees; such college shall hold the property of the institution and all moneys and property conveyed to it by purchase, gift, conveyance, will, devise, or bequest solely for the purposes of the educational work specified in said certificate; the trustees of such college shall faithfully apply all funds collected or received and the proceeds thereof belonging to the institution, according to their best judgment, in purchasing lands and erecting buildings, supporting necessary officers, instructors, and servants, and procuring all equipment, educational and otherwise, necessary to carry on the work of the college.

SEC. 3. That said university may enter into affiliated agreements with any institutions of learning outside of the District of Columbia, for the purpose of giving to students of such institutions the educational facilities of said university and the departments of the Government in the city of Washington which are by law open to students, upon such terms as are mutually agreed upon by the said university and the affiliated institutions. (U. S. Stat. L., vol. 33, pt. 1, pp. 1036, 1037; 58th Cong., 3d sess., ch. 1467.)

Approved, March 3, 1905.

AN ACT Donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there be granted to the several States, for the purposes hereinafter mentioned, an amount of public land, to be appor-

tioned to each State, a quantity equal to 30,000 acres for each Senator and Representative in Congress to which the States are respectively entitled by the apportionment under the census of 1860: *Provided*, That no mineral lands shall be selected or purchased under the provisions of this act.

SEC. 2. *And be it further enacted*, That the land aforesaid, after being surveyed, shall be apportioned to the several States in sections or subdivisions of sections, not less than one-quarter of a section; and wherever there are public lands in a State, subject to sale at private entry at one dollar and twenty-five cents per acre, the quantity to which said State shall be entitled shall be selected from such lands, within the limits of such State; and the Secretary of the Interior is hereby directed to issue to each of the States, in which there is not the quantity of public lands subject to sale at private entry, at one dollar and twenty-five cents per acre, to which said State may be entitled under the provisions of this Act, land scrip to the amount in acres for the deficiency of its distributive share; said scrip to be sold by said States, and the proceeds thereof applied to the uses and purposes prescribed in this Act, and for no other use or purpose whatsoever: *Provided*, That in no case shall any State to which land scrip may thus be issued be allowed to locate the same within the limits of any other State, or of any Territory of the United States; but their assignees may thus locate said land scrip upon any of the unappropriated lands of the United States subject to sale at private entry at one dollar and twenty-five cents, or less, an acre: *And provided further*, That not more than one million acres shall be located by such assignees in any one of the States: *And provided further*, That no such location shall be made before one year from the passage of this Act.

SEC. 3. *And be it further enacted*, That all the expenses of management, superintendence and taxes from date of selection of said lands, previous to their sales, and all expenses incurred in the management and disbursement of moneys which may be received therefrom, shall be paid by the States to which they may belong, out of the treasury of said States, so that the entire proceeds of the sale of said lands shall be applied, without any diminution whatever, to the purposes hereinafter mentioned.

SEC. 4. *And be it further enacted*, That all moneys derived from the sale of the lands aforesaid by the States to which the lands are apportioned, and from the sales of land scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less than five per centum upon the par value of said stocks; and that the moneys so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished, except so far as may be provided in section fifth of this Act, and the interest of which shall be inviolably appropriated, by each State which may take and claim the benefit of this Act, to "the endowment, support, and maintenance of, at least, one college, where the leading object shall be," without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

SEC. 5. *And be it further enacted*, That the grant of land and land scrip hereby authorized shall be made on the following conditions, to which, as well as to the provisions hereinbefore contained, the previous assent of the several States shall be signified by legislative acts:

First, If any portion of the fund invested, as provided by the foregoing section, or any portion of the interest thereon, shall, by any action or contingency, be diminished or lost, it shall be replaced by the State to which it belongs, so that the capital of the fund shall remain forever undiminished; and the annual interest shall be regularly applied without diminution to the purposes mentioned in the fourth section of this Act, except that a sum, not exceeding ten per centum upon the amount received by any State under the provisions of this Act, may be expended for the purchase of lands for sites or experimental farms, whenever authorized by the respective legislatures of said States:

Second, No portion of said fund, nor the interest thereon, shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings:

Third, Any State which may take and claim the benefit of the provisions of this Act shall provide, within five years, at least not less than one college, as prescribed in the fourth section of this Act, or the grant to such State shall

cease; and said State shall be bound to pay the United States the amount received of any lands previously sold, and that the title to purchasers under the State shall be valid:

Fourth, An annual report shall be made regarding the progress of each college, recording any improvements and experiments made, with their costs and results, and such other matters, including state industrial and economical statistics, as may be supposed useful; one copy of which shall be transmitted by mail free, by each, to all the other colleges which may be endowed under the provisions of this Act, and also one copy to the Secretary of the Interior;

Fifth, When lands shall be selected from those which have been raised to double the minimum price in consequence of railroad grants, they shall be computed to the States at the maximum price, and the number of acres proportionally diminished;

Sixth, No State, while in a condition of rebellion or insurrection against the Government of the United States, shall be entitled to the benefit of this Act;

Seventh, No State shall be entitled to the benefits of this Act unless it shall express its acceptance thereof by its legislature within two years from the date of its approval by the President.

SEC. 6. *And be it further enacted*, That land scrip issued under the provisions of this Act shall not be subject to location until after the first day of January, eighteen hundred and sixty-three.

SEC. 7. *And be it further enacted*, That land officers shall receive the same fees for locating land scrip issued under the provisions of this Act as is now allowed for the location of military bounty land warrants under existing laws: *Provided*, That maximum compensation shall not be thereby increased.

SEC. 8. *And be it further enacted*, That the governors of the several States to which scrip shall be issued under this Act shall be required to report annually to Congress all sales made of such scrip until the whole shall be disposed of, the amount received for the same, and what appropriation has been made of the proceeds.

Approved, July 2, 1862.

[Public—No. 249.]

AN ACT To apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress approved July second, eighteen hundred and sixty-two.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there shall be, and hereby is, annually appropriated, out of any money in the Treasury not otherwise appropriated, arising from the sales of public lands, to be paid as hereinafter provided, "to each State and Territory for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts now established, or which may be hereafter established, in accordance with an act of Congress approved July second, eighteen hundred and sixty-two," the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety, and an annual increase of the amount of such appropriation thereafter for ten years by an additional sum of one thousand dollars over the preceding year, and the annual amount to be paid thereafter to each State and Territory shall be twenty-five thousand dollars to be applied only to instruction in agriculture, the mechanic arts, the English language and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction: *Provided*, That no money shall be paid out under this act to any State or Territory for the support and maintenance of a college where a distinction of race or color is made in the admission of students, but the establishment and maintenance of such colleges separately for white and colored students shall be held to be a compliance with the provisions of this act if the funds received in such State or Territory be equitably divided as hereinafter set forth: *Provided*, That in any State in which there has been one college established in pursuance of the act of July second, eighteen hundred and sixty-two, and also in which an educational institution of like character has been established, or may be hereafter established, and is now aided by such State from its own revenue, for the education of colored students in agriculture and the mechanic arts, however named or styled, or whether or not it has received money heretofore under the act to which this act is an amendment, the legis-

lature of such State may propose and report to the Secretary of the Interior a just and equitable division of the fund to be received under this act between one college for white students and one institution for colored students established as aforesaid, which shall be divided into two parts and paid accordingly, and thereupon such institution for colored students shall be entitled to the benefits of this act and subject to its provisions, as much as it would have been if it had been included under the act of eighteen hundred and sixty-two, and the fulfillment of the foregoing provisions shall be taken as a compliance with the provision in reference to separate colleges for white and colored students.

SEC. 2. That the sums hereby appropriated to the States and Territories for the further endowment and support of colleges shall be annually paid on or before the thirty-first day of July of each year, by the Secretary of the Treasury, upon the warrant of the Secretary of the Interior, out of the Treasury of the United States, to the state or territorial treasurer, or to such officer as shall be designated by the laws of such State or Territory to receive the same, who shall, upon the order of the trustees of the college, or the institution for colored students, immediately pay over said sums to the treasurers of the respective colleges or other institutions entitled to receive the same, and such treasurers shall be required to report to the Secretary of Agriculture and to the Secretary of the Interior, on or before the first day of September of each year, a detailed statement of the amount so received and of its disbursement. The grants of moneys authorized by this act are made subject to the legislative assent of the several States and Territories to the purpose of said grants: *Provided*, That payments of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of legislature meeting next after the passage of this act shall be made upon the assent of the governor thereof, duly certified to the Secretary of the Treasury.

SEC. 3. That if any portion of the moneys received by the designated officer of the State or Territory for the further and more complete endowment, support, and maintenance of colleges, or of institutions for colored students, as provided in this act, shall, by any action or contingency, be diminished or lost, or be misapplied, it shall be replaced by the State or Territory to which it belongs, and until so replaced no subsequent appropriation shall be apportioned or paid to such State or Territory; and no portion of said moneys shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings. An annual report by the president of each of said colleges shall be made to the Secretary of Agriculture, as well as to the Secretary of the Interior, regarding the condition and progress of each college, including statistical information in relation to its receipts and expenditures, its library, the number of its students and professors, and also as to any improvements and experiments made under the direction of any experiment stations attached to said colleges, with their costs and results, and such other industrial and economical statistics as may be regarded as useful, one copy of which shall be transmitted by mail free to all other colleges further endowed under this act.

SEC. 4. That on or before the first day of July in each year, after the passage of this act, the Secretary of the Interior shall ascertain and certify to the Secretary of the Treasury as to each State and Territory whether it is entitled to receive its share of the annual appropriation for colleges, or of institutions for colored students, under this act, and the amount which thereupon each is entitled, respectively, to receive. If the Secretary of the Interior shall withhold a certificate from any State or Territory of its appropriation the facts and reasons therefor shall be reported to the President, and the amount involved shall be kept separate in the Treasury until the close of the next Congress, in order that the State or Territory may, if it should so desire, appeal to Congress from the determination of the Secretary of the Interior. If the next Congress shall not direct such sum to be paid it shall be covered into the Treasury. And the Secretary of the Interior is hereby charged with the proper administration of this law.

SEC. 5. That the Secretary of the Interior shall annually report to Congress the disbursements which have been made in all the States and Territories, and also whether the appropriation of any State or Territory has been withheld, and if so, the reasons therefor.

SEC. 6. Congress may at any time amend, suspend, or repeal any or all of the provisions of this act.

Approved, August 30, 1890.

INCREASE OF APPROPRIATIONS FOR COLLEGES OF AGRICULTURE AND THE MECHANIC ARTS.

[Extract from "An act making appropriations for the Department of Agriculture for the fiscal year ending June thirtieth, nineteen hundred and eight," approved March 4, 1907 (Public—No. 242).]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

* * * * *

That there shall be, and hereby is, annually appropriated, out of any money in the Treasury not otherwise appropriated, to be paid as hereinafter provided, "to each State and Territory for the more complete endowment and maintenance of agricultural colleges now established, or which may hereafter be established, in accordance with the act of Congress approved July second, eighteen hundred and sixty-two, and the act of Congress approved August thirtieth, eighteen hundred and ninety," the sum of five thousand dollars, in addition to the sums named in the said act, for the fiscal year ending June thirtieth, nineteen hundred and eight, and an annual increase of the amount of such appropriation thereafter for four years by an additional sum of five thousand dollars over the preceding year, and the annual sum to be paid thereafter to each State and Territory shall be fifty thousand dollars, to be applied only for the purposes of the agricultural colleges as defined and limited in the act of Congress approved July second, eighteen hundred and sixty-two, and the act of Congress approved August thirtieth, eighteen hundred and ninety.

That the sum hereby appropriated to the States and Territories for the further endowment and support of the colleges shall be paid by, to, and in the manner prescribed by the act of Congress approved August thirtieth, eighteen hundred and ninety, entitled "An act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of the act of Congress approved July second, eighteen hundred and sixty-two," and the expenditure of the said money shall be governed in all respects by the provisions of the said act of Congress approved July second, eighteen hundred and sixty-two, and the said act of Congress approved August thirtieth, eighteen hundred and ninety: *Provided*, That said colleges may use a portion of this money for providing courses for the special preparation of instructors for teaching the elements of agriculture and the mechanic arts.

FOURTH ANNUAL REPORT OF THE PRESIDENT AND OF THE TREASURER OF THE CARNEGIE FOUNDATION FOR THE ADVANCEMENT OF TEACHING.

* * * * *

THE GEORGE WASHINGTON UNIVERSITY.

A second institution to retire from the list of accepted colleges and universities during the present fiscal year was the George Washington University. The circumstances of this action were as follows:

Under the rules of the foundation a college to be eligible must have a productive endowment of \$200,000. In the case of the George Washington University the payment of current expenses has reduced the endowment far below this point.

The more serious question came, however, in the retirement, against their own wishes, of two professors, both men in active service and in the prime of life. These men were dismissed by the administration of the George Washington University on the ground that they could be pensioned by the Carnegie foundation and their places could be supplied by younger men at lower salaries, thereby effecting a saving at a time of financial stress.

This action seemed to the executive committee to involve two assumptions so at variance with the purposes for which the foundation was established as to call for protest. In the view of the executive committee, the arbitrary dismissal of a professor without charges was a violation of the principle of academic independence and freedom for which a college preeminently stands. In the second place, the executive committee felt obliged to protest against the

assumption that the Carnegie foundation could be used as a solution of the administrative problems or the financial embarrassments which may arise in the administration of the accepted colleges. If a college may retire a professor upon the foundation because he differs with the policy of the administration or because the college can save money by employing a cheaper man in his place, the foundation would be a questionable aid to the American college professor. Such a treatment of the privileges of the foundation seemed to the committee an unjustifiable use of an endowment intended for a totally different purpose.

The only effective protest against this action seemed to the committee to be the termination of the relation of the George Washington University as an accepted institution until such time as the committee could feel convinced that the ideals of its administration were more nearly in accord with those for which the foundation stands. In accordance with the power given it under the by-laws, the committee, therefore, terminated this relation.

The committee wishes to make clear the fact that this action was not intended as a blow to the institution, but as an act in the interest of all teachers and all institutions, including the George Washington University itself. The committee would welcome the upbuilding of a strong institution of higher learning in Washington, and would gladly see men of means contribute generously to it. The committee believes, however, that the way to the development of such an institution is not to be found by expanding a college into a university framework in the expectation that the means will somehow be found to make the framework real. Such a process leads almost inevitably not only to low standards, but to financial embarrassment. The committee believes that its action will, in the long run, be recognized as taken in the interest of higher education in the District of Columbia, not to its disadvantage; and it desires to urge upon those who wish to aid education at the nation's capital a thorough-going study of the sort of institution which is needed there and the financial help which ought to be given to it.

Washington has been for years a ground of exploitation for educational rivalries. Besides the George Washington University there is the Georgetown University of the Jesuits (an old institution), the new Catholic University of America, and the abortive attempt of the Methodists. In addition, Washington is filled with paper colleges which deal in short cuts to degrees, notwithstanding that their lists of trustees carry the names of men high in public life. The George Washington University has sought sincerely and honorably to unite, as far as this is possible, all those who believe in strong and useful educational work in the District of Columbia. The old Columbian University was a good college. Whether the effort to expand into a university without the necessary income was a wise policy is questionable. Without passing any opinion on the long-discussed plan for a national university, it is worth while to ask what sort of institution of higher learning in Washington would best serve the needs and aspirations of its youth in the matter of higher education.

This question can not be answered out of hand. Washington has a population which is unique in its attitude toward education, arising out of the presence of two groups of citizens in proportions far beyond those to be found in most cities.

The first group consists of the families of army and navy officers, scientific workers, officers, and employees of the civil service, and the like. These families, composing as they do so large a proportion of the population, belong to the very class which is most intent on an education for their children and which can least afford to send their boys and girls away to college, except at great sacrifice. I have in mind families of officers in the scientific departments who, on the meager income at their disposal, found the opportunity offered in the George Washington University invaluable. It is true this same situation presents itself in every town and city, and it would be fatal to go about establishing colleges in the effort to meet the needs of individual families. Such cases can be met only by sacrifice on the part of parents and children. The question is, however, whether there is so large a group of such families in Washington as to justify the maintenance of a college.

The second group consists of young men serving for a longer or shorter time as secretaries of Senators or Representatives, clerks in the departments and in similar places. Many of these are alert, ambitious, and energetic, ready to devote afternoon and evening hours to hard work in order to get an education.

The presence of these two groups—families on modest means, but with educational ambitions, and young men on salaries with spare time for improve-

ment—makes Washington an unusual educational field. The situation, while lending itself to a vigorous educational activity, carries with it peculiar temptations to superficiality in methods. Both these classes of people, particularly the latter, are looking for short cuts in education. It is this demand, together with the loose educational laws of the District, which enables the paper colleges of Washington—those which sell degrees on easy terms—to exist. The young man in the departments who seeks an education desires the shortest, easiest, and most direct path to a degree in engineering or education or medicine or law, so that he may earn money. Very rarely is he concerned for the breadth and liberality of training which prepares the way for the true teacher, or lawyer, or physician. However desirable it may be to furnish educational opportunities to these and other students, there can be no reason for affording these facilities on lower terms than other good colleges offer.

It is further to be noted that the desirability of maintaining a good college and engineering school in Washington is a very different thing from the question of maintaining a university with its law school and its medical school. In the professions, especially in medicine, there is no excuse, at this day of oversupply, for the maintenance of professional schools which rest on low standards or which do not provide the facilities for professional teaching on the basis of the modern practice.

The real questions which face the George Washington University seem to me be these: What sort of institution of higher learning is suited to the needs and population of the District of Columbia? How much of the work of such an institution can the George Washington University undertake with its present resources? Can a board of trustees be secured in Washington which will give time and thought to the work of an institution of higher learning?

Such a study of an educational field and its needs is most necessary in the present state of American education. Heretofore there has been little well-considered effort to ascertain what sort of institution might best serve the needs of a given community. The great brood of colleges which have sprung up in the last thirty or forty years have generally been imitations of the older colleges. They have been organized on the principle of starting the college first and getting the students into it afterwards. Even such a study of Washington as that to which I have alluded leaves out of consideration the fact that Washington has to-day the largest urban negro population in the world. It may well be that some form of industrial school in Washington is more important to civilization than to add one more agency for training engineers, doctors, and lawyers. The whole matter is one to be approached from the standpoint of a thorough study of educational needs and educational means.

**STATEMENT OF CHARLES W. NEEDHAM, PRESIDENT OF THE
GEORGE WASHINGTON UNIVERSITY, IN BEHALF OF THE
BOARD OF TRUSTEES, BEFORE THE HOUSE COMMITTEE ON
AGRICULTURE, HON. CHARLES F. SCOTT, CHAIRMAN.**

MR. CHAIRMAN AND GENTLEMEN OF THE COMMITTEE:

By your permission, given at the sitting of the committee on Friday, February 25, last, I submit the following reply to the objectors to House bill No. 12343. This reply has been prepared by me in conjunction with the other trustees of the George Washington University, has received their careful consideration and approval, and is presented to your honorable committee by me, as president, on their behalf. House bill No. 12343 is as follows:

A BILL To amend an act entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," approved July second, eighteen hundred and sixty-two, and the acts supplementary thereto, so as to extend the benefits thereof to the District of Columbia.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act of Congress entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agri-

culture and the mechanic arts," approved July second, eighteen hundred and sixty-two, and all acts supplementary thereto, be, and are hereby, amended so as to include in the terms and benefits of said act and supplementary acts the District of Columbia with the States and Territories, the intent being to make available for the District of Columbia the annual appropriations for the endowment, support, and maintenance of institutions giving instruction in agriculture, the mechanic arts, and the other subjects specified in the said act of Congress approved July second, eighteen hundred and sixty-two, and a supplementary act approved August thirtieth, eighteen hundred and ninety, and a supplementary act approved March fourth, nineteen hundred and seven, together with other acts heretofore passed providing for annual appropriations for such colleges.

SEC. 2. That the George Washington University, in the District of Columbia, is hereby designated to receive the appropriations under said acts of Congress: *Provided*, That it shall carry on courses of instruction in agriculture and the mechanic arts, and in the other subjects required of the state institutions receiving said appropriations.

SEC. 3. That there shall be, and hereby is, annually appropriated, out of any money in the Treasury not otherwise appropriated, to be paid to said university, in accordance with the provisions of said acts as hereby amended, the same sum or sums as is and may be hereafter allowed under said acts to each State and Territory, including the present year.

SEC. 4. That the Secretary of Agriculture, the Secretary of the Interior, the Secretary of Commerce and Labor, and the Commissioner of Education shall be ex officio members of the board of trustees of said university, and an annual report shall be made to Congress regarding its educational work.

THE DISTRICT ENTITLED TO THE FUND.

As a result of the replies made by President James and President Thompson to the questions put to them by the chairman, some of the points heretofore made by the objectors to this bill are apparently eliminated. They no longer question the justice and propriety of placing the District of Columbia on a parity with the States, the Territories, Porto Rico, and Hawaii, as respects the national annual appropriation intended to insure scientific and practical education of college grade to all persons under the jurisdiction of the United States. That the provisions of the Morrill acts should be extended to the District of Columbia may now, we think, be regarded as settled by the unanimous sentiment of all who have examined the matter.

THE ONLY QUESTION REMAINING.

This leaves for discussion in the closing argument the question, What institution in the District of Columbia Congress, as the local legislature of the District, ought to designate as the institution which is to receive this annual appropriation?

ONE COLLEGE IN THE DISTRICT TO BE DESIGNATED.

We say "institution," not "institutions." It is true that the original Morrill Act of July 2, 1862, which based the endowment on land grants, spoke of "the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts." In the act of August 30, 1890, by which the national annual appropriation was established, and the Territories placed on a parity with the States, the evident purpose is to endow one college in each State and Territory so as to make it capable of fulfilling the purposes of the endowment. The only exception

made by the act of 1890 is of cases where, prior to August 30, 1890, a state-aided college for colored persons had been established by a State and was then in receipt of a part of the Morrill Act fund. (We submit herewith copies of the Morrill acts as exhibits.)

It is clear that the \$25,000 annually given by the act of 1890 or the \$50,000 annually given by the act of 1907 could not be used to effect the purposes of the original Morrill Act unless it was given to one college in each State or Territory. Any other interpretation of the existing Morrill acts tends to dissipate the annual appropriation among many colleges and would result in a failure to attain the high object which Congress had in view when the system was established.

THE DESIGNATION OF THE GEORGE WASHINGTON UNIVERSITY.

The sole question therefore is whether Congress ought to designate the George Washington University as the institution in the District of Columbia to receive the District's share of this great American educational endowment.

THE OBJECTIONS STATED.

The objections urged are: First, that the university is a private corporation; second, that it is a sectarian institution; third, that its financial management is unsound; and fourth, that its educational standards are deficient. A fifth objection which has been suggested here and openly urged by the objectors before Congress on other occasions is that the George Washington University stands in the way of their plan to establish a government-supported university in the District and ought therefore to be abolished.

THE UNIVERSITY NOT A PRIVATE CORPORATION.

To the first objection we reply that the George Washington University is a semiprivate, semipublic corporation. We do not rest this statement wholly on the proposition that it is a corporation for public and technically charitable purposes. Lawyers know that all educational institutions which are open to the public are classed in law, and especially by the decisions of the Supreme Court of the United States, in nearly the same category as public corporations. The funds given to them for educational purposes pass out of the control of the donors, are guarded by the State, and on dissolution of the corporation pass to the State as trustee.

We do not wholly rest on this proposition as to the character of the corporation, for the charter of the George Washington University provides that the record of its financial and educational proceedings shall be carefully kept in record books, which records it expressly provides—

shall at all times be open to the inspection or examination of the Attorney-General of the United States; and, when required by either House of Congress, it shall be the duty of said trustees to furnish information respecting their own conduct, the state of the institution, and of its finances, which shall or may be so required.

Another provision of the original charter reads:

That the constitution of the said college, herein and hereby declared and established, shall be, and remain, the inviolate constitution of the said college forever; and

the same shall not be altered or alterable, by any ordinance or law of the said trustees: *Provided*, That it may be lawful for the Congress of the United States to revoke and repeal this act at any and at all times whenever they shall think fit so to do.

In view of these provisions it seems clear that though Congress saw fit to give this institution the form of a private corporation, it regarded it as in some sense a public institution of the District of Columbia and reserved the power to watch over it and guard it, so that it might do the most good possible, and, at the election of Congress, to remodel it or to end its existence for any cause calling for such action in the interest of the public welfare. In a very special sense we think we are right in saying that the institution is public as well as private.

We append hereto copies of the several acts of Congress, etc., from the year 1821, which together form the charter of the university.

EFFECT OF THE PENDING BILL UPON ITS STATUS.

It should also be noted that the bill now pending and under consideration provides that four federal officers shall be ex-officio members of the university board, and that annual reports shall be made to Congress.

If Congress desires to give the university still more the character of a public institution by providing that the election of its trustees shall not be effective until approved by the local executives of the District, the trustees of the university will offer no objection.

II.

THE NONSECTARIAN CHARACTER OF THE UNIVERSITY.

The second objection is that the university is sectarian. That it is not now sectarian in fact has been proved to you by the reading of the statistics showing the religious sentiments of the present members of the board of trustees and faculty.

But it is suggested that there is nothing in the charter to safeguard the present nonsectarian condition. It is asserted that the nonsectarian provision of the original charter did not and does not necessarily exclude the possibility of sectarian control. This provision of the charter is as follows:

That persons of every religious denomination shall be capable of being elected trustees, nor shall any person, either as president, professor, tutor, or pupil, be refused admittance into said college or denied any of the privileges, immunities, or advantages thereof for or on account of his sentiments in matters of religion.

So far as the board of trustees is concerned, this provision simply prevents any person from being treated as ineligible to election as a trustee on account of his religious creed, provided he is a person of "a religious denomination." Should a candidate be proposed who is a person of any religious denomination and otherwise acceptable election could not be refused by the board on the ground of his particular denominational affiliations. If such a discrimination were made—and it would have to be in order to give control to any denomination—it would be a clear violation of the charter, for which the university could be called to account by the Attorney-General or by Congress.

Public sentiment has changed in the last few years and now it may be said to be a matter of very general agreement that the control of great universities should be wholly public in character or through nonsectarian organizations. We believe this public sentiment voices the principle which is announced in our charter: That trustees should be religious men, but of any and all denominations. To sum up this point, if any trustee, or any nominating committee of the board of trustees, should nominate a person of any religious denomination to be a trustee, and, if he should be defeated by a majority of the trustees on account of his denominational affiliation, a condition would arise which would call for the intervention of the Attorney-General or of Congress.

COLUMBIAN COLLEGE.

Another objection under this general head is that a subordinate college has been organized in the university under denominational control. The amendment to the charter, act of Congress approved March 3, 1905, provides:

SEC. 2. That by and with the consent of said university, colleges may be organized hereunder for the purpose of carrying on, in connection with the university, special lines of educational work in the arts, sciences, and liberal and technical knowledge, such colleges to be educationally a part of the system of the university, but upon independent financial foundations, and to this end any five or more persons desirous of associating themselves for the purpose of establishing a college hereunder, may make, sign, and acknowledge before any officer authorized to take acknowledgment of deeds in the District of Columbia, and with the assent of the university in writing, file in the office of the recorder of deeds of the said District a certificate in writing, in which shall be stated: First, the intention to organize a corporation under this act and the assent of the university thereto; second, the name or title by which the college shall be known in law; third, the names of the trustees constituting the first board, and such trustees may be divided into three classes, the term of office of one class expiring annually; fourth, the manner of nominating and electing successors to said trustees; fifth, the branch or branches of literature, arts, science, liberal or technical knowledge proposed to be taught; sixth, that the highest officer of said college shall be a dean, the dean and members of the faculty to be members of the educational councils of the university in accordance with the rules governing the university; seventh, that all degrees shall be bestowed by the university; eighth, that in all financial and legal responsibility the college shall be an independent organization.

Upon filing such certificate the trustees named therein and their successors shall be a body politic, incorporated by the name and style stated in the certificate, and by that name and style shall have perpetual succession in association with the university, with power in the college to sue and be sued; plead and be impleaded; to acquire, hold, and convey property in all legal ways; to receive by gift, devise, or otherwise, and hold, control, and administer endowments and gifts of money and property thereafter made to it for the maintenance of its educational work; to have and use a common seal, and to alter and change the same at pleasure; to make and alter from time to time such by-laws, not inconsistent with the Constitution of the United States or the laws in force in said District or the laws of the university regulating the conduct of educational work, as may be deemed necessary for the government of the college, but said college shall not confer academic or honorary degrees; such college shall hold the property of the institution and all moneys and property conveyed to it by purchase, gift, conveyance, will, devise, or bequest solely for the purposes of the educational work specified in said certificate; the trustees of such college shall faithfully apply all funds collected or received and the proceeds thereof belonging to the institution, according to their best judgment, in purchasing lands and erecting buildings, supporting necessary officers, instructors, and servants, and procuring all equipment, educational and otherwise, necessary to carry on the work of the college.

The purpose of this amendment was to provide a plan for uniting the different movements for colleges in the city of Washington under one university organization, the university to standardize the work by granting the degrees and providing upon what standards, of

admission and work, degrees would be granted. This plan practically follows that of Oxford and Cambridge, England, and the University of Toronto, in Canada.

When the university became nonsectarian and changed its name under the provisions of the act of Congress, it desired to prevent the use of the old name "Columbian" by any outside organization, and it also desired to show the most friendly disposition toward the Baptist denomination and appreciation of its services to the university.

There were no legal obligations created by donors to continue the denominational control of the university. The only contributor during the period when its charter provided that it should be denominational—1898 to 1904—filed with the board a written consent that it should be made nonsectarian. The contributions in the earlier history, when it was nonsectarian by its charter but sectarian in fact, were not conditioned upon its having a sectarian charter. However, as a recognition of the work of the denomination in the past the university consented to the organization under the charter of a corporation to be known as "Columbian College," with nine trustees, seven of whom were of the Baptist denomination. There was no provision in the charter that the college should be under denominational control, but it was denominational in fact.

The university then suggested that if the Baptist denomination would assume this organization and provide for its maintenance, by endowment or otherwise, satisfactorily to the university, the university, out of its free funds, would build upon its new site a classroom building and a dormitory building for the college and turn over the control of these buildings to the trustees of the college. It was expressly understood that this was to be a college of liberal arts.

It was also understood that the organization of this college should not prevent, in any way, the organization of like colleges by other groups or denominations in connection with the university.

A very full statement of the whole denominational history is set forth in a report prepared by Mr. Joseph J. Darlington, who was for some time a trustee of the university, and who was also chairman of the educational committee of the Columbia Association of Baptist Churches, submitted at the meeting in November, 1904, copy of which is presented with this statement.

After several years of effort and failure to secure the cooperation of the Baptists in the maintenance of this "Columbian College," it was determined a year ago to suspend the use of the organization and name by the university in connection with its liberal arts work, and to carry on its undergraduate work of every kind under the direct control of the university board. In doing so the trustees announced that it was not their wish to withdraw from the position which the university had taken regarding Columbian College, but that its action was in the interest of economical administration of all its undergraduate work.

We think we may say that it is not now considered probable by anyone that this organization will ever be revived for the purposes for which it was created, and that there are no legal obligations whatever existing on account of it. The action was taken in the broad spirit of equity and fairness, and it was demonstrated that what was stated when the trustees determined to make the university nonsectarian is true, namely, that the Baptist denomination would

not support a college or university in Washington. This proposition was taken openly and in letters written by leading men of the denomination, without whose support a denominational institution could not be successfully maintained.

APPLICATION OF THE MORRILL FUNDS BY THE UNIVERSITY.

Replying to President James's assertion that we intended to use the Morrill funds to pay for work in English, mathematics, languages, and other subjects carried on in the college of liberal arts, we desire to say that every college of agriculture and the mechanic arts must teach these subjects as a part of its curriculum. The Morrill acts, as construed by the Interior Department, provide that these subjects shall be taught. In arranging the work in the college of engineering we provide that the students in that college shall take their work in these general subjects under the professors in the college of arts. This is done in the interest of good work and economy. The college of engineering is charged only with its share of this work, which makes the cost much less than it would be if the same work were maintained independently for that college. In accounting for this work to the Department of the Interior only such part of it can be charged as has been rendered to the students of engineering and agriculture.

We append hereto copies of the instructions of the Interior Department under the Morrill acts.

III.

THE FINANCIAL MANAGEMENT OF THE UNIVERSITY.

Financial statements have been published regularly every year showing the condition of the university. It has long been recognized that the institution must preserve the status of a university and not merely that of a college in order to serve the needs of the District. This status has been preserved in the face of great difficulties.

PROPORTION OF EDUCATIONAL EXPENSES PAID BY STUDENTS FEES.

One of the methods of determining whether a university is managed economically is to ascertain how far the tuition fees paid by students go toward paying for their education; that is to say, what percentage of the educational expense is paid by the students' fees. No institution of higher learning can carry on satisfactory work upon these fees. There is a large margin of expense which must be taken care of by endowments, contributions, and state aid. The proportion of educational expenses paid by students' fees in this university is 52.5 per cent. It is believed that this proportion, upon a fair comparison, equals or exceeds that of any other institution in the country doing similar work. In the cases which we have examined this proportion was apparently from 25 to 51 per cent.

RESOURCES OF THE UNIVERSITY.

In the early history of the old Columbian College, founded in 1821—which is the predecessor of the Columbian University and the George

Washington University—some errors, it has been recently discovered, were made in the endowment accounts; and in order to ascertain the precise amounts of all the endowment funds an examination is being made of the records of that college from the beginning in 1821 and of the Columbian University and the George Washington University. It is confidently believed, however, that any errors which may still be discovered in these accounts will not have the effect seriously to change the amounts given below, and that the total of the endowments as shown in the following statement is very nearly correct.

Persistent efforts have been made by the trustees to provide an adequate endowment and to raise funds to meet current expenses. In order to meet extraordinary emergencies, however, and to maintain the life of the institution, the old Columbian College and its successor, the university, by order of the trustees, borrowed temporarily from some of the funds held in trust for general endowment purposes or for special purposes, and applied the amounts so borrowed to meet current educational expenses.

As the amounts thus temporarily borrowed were charged by operation of law upon the net assets and are carried by order of the trustees upon the books of account as an indebtedness of the general fund to the special funds, it has been concluded that the simplest way to present the present financial condition of the university is to make up three tables of accounts, the first showing on one side, as assets, both the real and personal property which the university owns in its own right, and the real and personal property which is held by it as representing endowment and special trust funds; and on the other side, as liabilities, both the ordinary debit liabilities of the university and the amount of all endowment and trust funds; the second table showing the total resources of the university as made by adding this general balance to the amount of all endowment and special trust funds; and the third showing the classification of the various funds which go to make the total resources.

These accounts are made up as it is estimated the situation will be on August 31, 1910, that being the end of the fiscal year, and many of the contracts of the university extending to that date.

The first table, on this basis, is as follows:

ASSETS.

Real estate owned for university purposes.....	\$1,009,000
Personal property owned for university purposes.....	84,000
Cash assets.....	8,000
Real estate held in trust and representing endowment and trust funds....	83,000
Personal estate held in trust and representing endowment and trust funds.	62,000
Total.....	1,246,000

LIABILITIES.

Funded debt.....	450,000
Unsecured debts and accrued interest.....	67,000
Deficit for current year (estimated).....	60,000
Endowment and trust funds.....	335,800
Trust funds, incomplete.....	21,200
Total.....	934,000
Balance of all assets over all liabilities on the above basis.....	312,000

As, however, the endowment and trust funds are not ordinary debit liabilities, but are only liabilities from the university in its own right to itself as trustee, the total net assets of the university are distributed as follows:

Balance of all assets over all liabilities.....	\$312, 000
Endowment and trust funds.....	335, 800
Trust funds, incomplete.....	21, 200
Total net assets of the university.....	669, 000

NOTE.—The above statement of assets differs in some respects from the statement of assets made in the printed report of the treasurer of the university under date of August 31, 1909. This difference is due to the following causes: Certain unpaid subscriptions shown in that report as assets, the collectibility of which is questioned, and certain miscellaneous items of credit shown in that report as assets but which were of doubtful collectibility, are charged as assets only to the extent that collections have been made since August 31, 1909; also \$17,000, being one-half of the amount collected on the subscriptions for buildings, site, and educational extension, has been charged off as an asset and carried to current expenses, in accordance with the decision of the board of trustees, as hereinafter stated; also a deduction of \$4,400 has been made in the valuation of certain securities charged as assets at par value in order to make the valuation correspond with the market value.

Of the endowment and trust funds, about \$192,000 are endowment funds for the general purposes of the university, so that the net income only is applicable to the general purposes; about \$64,000 are special endowment funds to pay professors' salaries, so that the net income only is applicable for this purpose; about \$79,800 are held on special trusts for scholarships and prizes, so that the net income only is applicable for these purposes; and about \$21,200 are held on trusts for building purposes, so that the principal and income must be allowed to stand and accumulate until the building funds are completed. The total resources of the university may therefore thus be classified:

Amount applicable to buildings, apparatus, furniture, and fixtures.....	\$312, 000
Funds, the income of which is applicable to general current expenses.....	192, 000
Funds, the income of which is applicable to professors' salaries.....	64, 000
Funds, the income of which is applicable to scholarships or prizes.....	79, 800
Funds, the income of which is to accumulate.....	21, 200
Total net resources (as above).....	669, 000

FACTS CONCERNING THE CORCORAN ENDOWMENT FUND.

The only endowment fund for the general purposes of the university is that called "The Corcoran endowment fund," the total amount of which is estimated at \$192,000. Of this amount \$110,000 was given, partly in real estate and partly in securities, between the years 1873 and 1886, by Hon. William W. Corcoran, who was president of the board of trustees from 1871 until his death in 1888, and about \$82,000 by a number of persons in Washington, Baltimore, the State of New York, and the New England States. Mr. Corcoran, in his original letter of January 11, 1873, stated that his gift was made in pursuance of his publicly announced intention—

in view of the previous proposition of the trustees to raise the sum of \$250,000 to aid in the permanent endowment of the college and its elevation to the dignity and usefulness of a university.

In that letter he stated that the condition of his gift was—

that the principal of the donation, when realized, should be funded and kept forever intact, the interest alone being applied to the support of the college.

In the deed of the real estate given by Mr. Corcoran, it was provided that the property should be sold and—

the proceeds, or purchase money, thereof, together with the sum of \$100,000, subscribed and to be obtained from other sources, in addition to the proceeds of the sale of Trinidad [the real estate donated] shall constitute a principal sum, to be known as "the Corcoran endowment fund," and to be forever held inalienable and not to be diminished by use for the support of said institution, but that the whole amount of said principal sum shall be invested, in the discretion of the trustees of said institution and according to their best judgment, and the interest thereon or the income therefrom derived only, shall be used for the current expenses and support of the said institution.

The amounts given by the other subscribers to this fund were given upon a similar trust for the general purposes of the institution, and with a similar restriction, according to which the principal was to be kept intact and the income only used for current expenses. Mr. Corcoran's final gift of \$25,000 for this fund in 1886 was made upon a similar trust and a similar restriction.

In 1885, while Mr. Corcoran was president of the board of trustees, \$10,000 of the proceeds of the sale of the real estate given by him was, by his consent, borrowed by the university to pay for necessary scientific apparatus, and in 1887 and 1888, during his last illness and shortly after his death, to meet pressing exigencies, about \$48,000 was borrowed from the fund by the university to take up debts secured on the university buildings and to pay for necessary equipment theretofore provided. In 1897 there was a loss to this fund by defalcation of the then treasurer of the university, amounting to about \$20,000. In 1898 the fund was fully restored and productively invested.

In 1907, during the financial stress caused by the bank panic, and in subsequent years, to meet the pressing needs of the District and to maintain the existence of the institution as a university as contemplated by the donors and by Congress, the funds were again borrowed until there now remains only \$16,000 productively invested. The result is that by operation of law and the action of the trustees the total amount of the Corcoran endowment fund, with the exception of the \$16,000 productively invested, is now charged upon the equity in the buildings used by the university for its educational purposes and the other free resources of the university. The total amount of the fund, \$192,000, or such sum as shall be ascertained to be correct on precise determination, is to be restored to productive investment and kept intact.

FACTS CONCERNING THE CONGRESSIONAL PROFESSORSHIP ENDOWMENT FUND.

In the year 1832 Congress donated to the old Columbian College—the predecessor of the university—\$25,000 worth of Washington City lots. By the terms of the act the proceeds of the sale of these lots were to be used as "a capital," and "the dividends or interest therefrom accruing" were to "be used and applied in aid of the other revenues of the said college, to the establishment and endowment of such professorships therein as now are, or hereafter shall be, established by the said trustees." In 1839 Congress passed an act allowing \$7,000 of the proceeds to be used for the payment of the

debts of the college. Most of these lots were sold years ago, but the university still holds a part of them, containing about 139,000 square feet and valued at about \$32,000. The amount obtained for the lots sold will be ascertained and added to the proceeds from the sale of the lots now owned, and the fund after proper deductions for taxes, etc., will be kept intact. In the above statement this fund is estimated at \$50,000.

FACTS CONCERNING THE BUILDING, SITE, AND EDUCATIONAL EXTENSION FUND.

This fund was subscribed under a form of subscription reading as follows:

THE GEORGE WASHINGTON UNIVERSITY,
Washington, D. C., ———, 190—.

To secure the sum of four hundred thousand dollars to be applied by the trustees toward the purchase of grounds and buildings, and the enlargement of the educational work, and in consideration of the subscriptions of others, I will pay to the George Washington University ——— dollars in five equal installments, the first installment to be paid on the first day of July, 1907, the remaining installments payable respectively on the first day of July of each succeeding year until all installments are paid. Or will pay in full on ———.

On this subscription form about \$105,000 was subscribed and \$34,000 paid in. This subscription paper was drawn up by two committees, one of which was attempting to raise a building fund, and the other to raise a fund for current expenses to extend the educational work of the university. It was represented to the subscribers that the trustees were intending to secure a new site for the university, but it was not represented that the raising of \$400,000, or any other definite sum, was to be a condition precedent of the subscriptions either to the building fund or to the educational extension. This is evident from the subscription form. The trustees consider it to be a just interpretation of this subscription that one half the amount paid in should be applied as a building fund, the principal to be kept intact, and the income to accumulate, and that the other half should be applied to the current expenses of educational extension. It has accordingly been so ordered by the board.

SUBSCRIPTIONS FOR CURRENT EXPENSES TO MEET EXPECTED DEFICITS.

The sum of \$30,300, to be paid in three annual installments for the current expenses of the next three years has been subscribed toward meeting the annual deficits which it is expected will still remain after the Morrill fund appropriation is made, in case the present educational standards are maintained and extended to meet the local needs. It is confidently expected that this amount will be increased to \$60,000. With the \$60,000, and with the Morrill fund appropriation, the current expenses of the university will be fully met and the university enabled to meet the beneficent requirements of the Morrill acts and the pressing needs of the District.

IV.

THE EDUCATIONAL STANDARDS OF THE UNIVERSITY.

Any criticism which may have been made concerning the existing educational standards of the university has probably arisen from the action taken last June by the Carnegie Foundation, without a hearing of the university. In the report of the foundation this year, just issued, the action taken is based on grounds having no relation to the educational standards of the university. The dispute between the university and the Carnegie Foundation, as it now stands, is reduced to two points: First, whether an arbitrary rule established by the foundation on the subject of the amount of productive endowment necessary to enable an institution to be accepted by it justly authorizes the foundation to drop the institution from its accepted list without a hearing, when a free endowment is temporarily charged upon the buildings used by the university for educational purposes; and, second, whether the universities which are placed on the accepted list are wholly without power to determine when professors who are carried on the foundation's reports as entitled to retirement shall be retired.

We submit a copy of the report of the Carnegie Foundation in which, at pages 42 to 45, will be found the statement of the controversy.

The fact is that the educational standards of the university are fully up to the requirements of the best universities and colleges. In cases where our students have gone to other institutions of the highest recognized standing for a part of their work they have received full credit for their time and work here. We welcome the most thorough investigation of our standards of admission, methods, and instruction.

V.

A FEDERAL UNIVERSITY OPPOSED TO THE GEORGE WASHINGTON UNIVERSITY.

In conclusion, permit us to refer to the suggestion of the objectors that Congress establish and maintain a public institution of higher learning for the District of Columbia. It is impossible for two universities—one a state institution or government-supported institution and the other a nonsectarian institution like the George Washington University—to exist side by side in this District. This university appeals to the District, to the civic pride and needs of the people of the locality, for its support. If these needs are provided for by an institution supported out of the Federal Treasury, there will be no reason for the people to support one by private contributions. The result would necessarily be the destruction of the latter if the former is established.

If it is the purpose of Congress, now or at any time, to establish a state institution for this District—by that we mean a government-supported institution—would it not be wiser to take over the existing nonsectarian university, with its property and organized work, with its 1,400 students and the support of its 6,000 alumni, than to destroy this structure by establishing a new one? We do not propose such action. We prefer to continue our work as now organized. But we

do wish to impress upon the committee, and through the committee upon Congress, that these two propositions, one to have a government-supported institution and the other a university like the George Washington, are antagonistic and can not live together.

The university was given a semipublic character—though a private form—by Congress in 1821, after a most careful consideration of the whole question of the needs of the District of Columbia by Senators and Representatives who had been in contact with the framers of the Constitution and who knew their views and their reasons for not providing for a national university at the seat of the Federal Government. The Congress of 1821 thought it best to make the institution private in form, so that it should derive its substantial support from private contributions; but they provided at the same time that Congress and the Attorney-General of the United States should have visitorial powers, thus giving it a public aspect. Under the pending bill these visitorial powers will be still further increased, and annual reports will be made to Congress regarding the conduct of the university. There is not another institution in the District that has such provisions in its charter. Congress can completely control the general conduct of the university along the lines which are best suited to meet the needs of the District.

It would therefore seem wise that this institution should be maintained and its present work continued; that Congress should give to it the benefits of the Morrill acts and leave to individual initiative and private contributions the complete support of the university. This will furnish education of college and university grade in all departments of learning to the young people of the District.

For the board of trustees of the George Washington University:

CHAS. W. NEEDHAM,
President.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Tuesday, March 29, 1910.

The committee met at 10.30 o'clock a. m., Hon. Charles F. Scott (chairman), presiding.

The CHAIRMAN. Since the hearings on what is known as the George Washington University bill were closed some days ago petitions have been received, numerously signed, asking that the share of the Morrill fund to which, it is argued, the District of Columbia is entitled, be assigned to a public institution of the District, instead of the George Washington University, and suggesting the McKinley High School as such public institution. In connection with those petitions came a request from the Central Labor Union and others asking that they be heard in support of these petitions, and this meeting has been called in compliance with that request. I believe that the petitioners are represented this morning by Doctor Smith as the spokesman, and I will ask him to make whatever statement he desires before the committee and present the other speakers whom he would like to have heard. I would like to suggest that the committee will be obliged to adjourn promptly at 12 o'clock, and we will be glad, therefore, if the speakers would govern themselves accordingly.

STATEMENT OF DR. M. PAGE SMITH.

Doctor SMITH. I was asked by Mr. George A. Prevost to appear for him this morning, owing to the fact that he could not be here. He has written a statement which he has asked me to read and then present to the chairman of this committee.

The CHAIRMAN. Before doing that will you tell us who Mr. Prevost is, and whom he represents, and what authority he has?

Doctor SMITH. Mr. Prevost is an attorney of the firm of Whitaker & Prevost. This movement was set on foot, if I remember right, by the original graduates of the first graduating class of the high schools of the District of Columbia. I forget exactly what year, but it is some years ago the first class that graduated from the high schools. They have been organized for years and call themselves "somebody's old boys." I forget the proper name. It is due to them that this movement has been set on foot. In addition, Mr. Prevost has talked with and obtained the signatures of numerous business and professional men of the District of Columbia. Of course, the other speakers will represent the labor side of the question, and the colored population will also be represented, so that you gentlemen will know exactly what the people—the residents of the District of Columbia; those who will be affected by this bill—desire in relation thereto.

The letter of Mr. Prevost is as follows:

BISCHOFF BUILDING, 610 F STREET NW.,
Washington, D. C., March 28, 1910.

HON. CHAS. F. SCOTT,
Chairman of Committee on Agriculture.

SIR: I have the honor to acknowledge the receipt of the notice of March 23, to the effect that a hearing would be given to the signers of the petition asking extension of the benefits of the Morrill acts to the District of Columbia, on Tuesday, the 29th of March, at 10.30 a. m.

Owing to the fact that I am engaged in the trial of a case in court, I am unavoidably prevented from appearing in person at this hearing, and beg to submit the following matter in writing:

As a citizen of the District, I am, with many others, interested in seeing that the benefits of the Morrill acts are extended to the District, but in such a manner that opportunity for the pursuit of industrial education shall be afforded the students of the District free of charge.

This, it is respectfully submitted, will not be the case, if the fund is given to a private institution.

The question then arises as to whether we have in the District a public institution to which the fund can properly be allotted for the purpose sought.

It seems to me that it requires only a brief study of the last report of the United States Commissioner of Education to determine that we have in the McKinley Manual Training School a superior plant for a college of agriculture and mechanic arts. In value of buildings and in equipment it would be placed in the class of the 10 colleges having the best buildings and finest equipment. Two-thirds of the colleges proper of agriculture and mechanic arts have poorer buildings and less and inferior equipment than we have at the McKinley Manual Training School. This plant could and ought to be used as a matter of economy, not only for its present purpose as a manual training high school, but for a college of agriculture and mechanic arts. The principal of the school has replied to Mr. Ryan of the Central Labor Union, that with the completion of the new building such a plan is perfectly feasible. The academic work of the college course can be given during the hours that the high school is in session, and the shop work after 2.45 p. m., when the shops have been vacated by the high-school pupils.

As far as our colored brethren are concerned, we have already at Howard University, not only a valuable plant, but established college courses, to be found in no institution offering instruction in agriculture and the mechanic arts to colored students. The colored students already have better advantages for public college education than have the white students of the District. It is, therefore, quite clear that the question of grounds, buildings, and equipment is already most happily solved for the establishment of colleges of agriculture and mechanic arts in the District of Columbia. Not one dollar need be expended along these lines to found such colleges in the District.

The only unsolved problems are the selection of a proper board of administration, the adoption of a course of study, and the employment of a faculty of teachers.

We would suggest that a board made up of the United States Commissioner of Education, the Secretary of the Department of Agriculture, the Secretary of the Department of Commerce and Labor, a member of the board of education for the District, and a member to be chosen by the Commissioners of the District would be well fitted to administer a college of agriculture and mechanic arts.

The apportionment from the Morrill fund would be ample to pay the salaries of the teaching force. In proof of this statement I want to call your attention to some details of information obtained from the last report of the Commissioner of Education and from recent catalogues of these colleges in four of the smallest States. These States—namely, Connecticut, Rhode Island, Delaware, and Maryland—have been selected because they are small in area and in population, and, therefore, more comparable with what we should expect and plan for in the District. The colleges of agriculture and mechanic arts in all these States have free tuition, and the reports seem to indicate that the entire cost of instruction is paid from the Morrill appropriation, which for the year 1908 for Connecticut and Rhode Island colleges was \$30,000 each and for Maryland and Delaware \$24,000 each for the schools for the white students and \$6,000 each for the school for the colored students. All of the colleges of agriculture and mechanic arts in these States have less in buildings and equipment than we have at the McKinley Manual Training School.

Name of college.	Value of buildings.	Value of machinery.	Total value of equipment.
Connecticut Agricultural College.....	\$250,000	\$5,000	\$52,000
Rhode Island College of Agriculture and Mechanic Arts.....	189,000	73,000
Delaware College.....	130,000	19,000	81,300
Maryland Agricultural College.....	371,000	3,259	125,000
McKinley Manual Training School.....	490,000	66,700	125,000

On page 12 of the catalogue for the Connecticut Agricultural College, 1908-9, we read, "From the federal funds are paid practically all the salaries of the officers of instruction and administration;" and on page 20 of the same catalogue we read, "The college gives free tuition and free rent of rooms to residents of Connecticut." The college employs 10 professors, 2 associate professors, 8 instructors (including 1 each of German, music, and military science), and 2 assistant instructors, at a total salary of \$30,095. It has 257 students, 137 of whom are in special and short courses.

The Rhode Island College of Agriculture and Mechanic Arts employs 15 professors, 27 teachers, and 12 instructors.

To come a little nearer home, Delaware College has a faculty of 17 professors (2 of them in foreign languages), 1 assistant professor, and 5 instructors. The disbursement for salaries was \$23,634. The number of students, 184.

Maryland Agricultural College has a faculty of 12 professors, 5 assistant professors, 1 instructor, and 3 assistant instructors. It had 240 students. As indicated above, it received but \$24,000 from the Morrill fund. The State appropriated \$15,000 for current expenses. George Washington University has 247 students in mechanic arts and pays \$14,300 for the teaching of these students, and receives \$19,324 from them in fees.

And now, I think, Mr. Chairman and gentlemen of the committee, that I have shown that the people of the District want a free college of agriculture

and mechanic arts for the District. How else can you explain the large number of signatures to this petition? And I have further shown you that we have a most excellent plan for such an institution in the District. Moreover, I have shown by comparison with reports from other States that the appropriation from the Morrill fund will pay the cost of instruction in such a college. We, therefore, submit the question to you whether our boys, and especially our poor boys, should not have this opportunity offered to them by the passage of the first section of this bill. The rest of the bill to suit our proposition should either be cut out altogether, leaving the selection of the institution to a later date as indicated in my letter of the 22d instant (which I here submit as part of my statement and ask to have considered herewith), or by the amendment of the sections of the bill after section 1, so as to designate a public free district institution and make provision for a board of administration.

Respectfully submitted.

GEO. A. PREVOST.

Mr. Prevost in his letter makes the suggestion that this money be appropriated to the District of Columbia, and should you gentlemen consider the McKinley Manual Training School is not competent to receive the money, or not in position to use it, we submit that this money should be appropriated and then the District Committee of the Congress of the United States, acting as a legislative body of the District of Columbia, should then be called upon to designate some school to which this money should go. In the light of precedent, as we have shown from statistics, the custom that has been followed seems to us to be a good one for the District, namely, for Congress, acting as a legislative body for the United States, to pass the first section of this bill. This section particularly comes before this committee, that is, the Agricultural Committee. Once this fund is extended to the District by Congress, acting as a Congress of the United States, it will be the duty of Congress in its legislative capacity for the District of Columbia to provide for colleges of agriculture and mechanic arts in the District of Columbia, and this latter part of the procedure, being a District or local question, would properly come before the educational subcommittee of the Committee on the District of Columbia.

After Congress appropriated a fund for the Hawaiian Islands, before the school was even formed, the Hawaiian Islands later established and started such a school within three weeks.

In regard to appropriating money to the District of Columbia and then establishing a college, I would also call your attention to the fact that in 1862, at the time of the passage of the original Morrill Act, there were 36 States in the Union. In only 8 of these were there colleges of agriculture and mechanic arts, or other institutions which have been so expanded as to receive the benefits of the Morrill acts. These States were Delaware, Louisiana, Maryland, Michigan, Missouri, Pennsylvania, Tennessee, and Wisconsin.

The first State after the passage of the Morrill Act in 1862 to open a college of agriculture and mechanic arts was that of the chairman of the committee, Kansas. It opened its school in 1863. Georgia, which is represented on this committee, did not establish a college under this act until ten years later. Texas not until 1876, that is, fourteen years later than it might have done so. Iowa waited only six years to make use of the fund. The same is true of New York and Illinois. California was one year longer than these States. Oregon opened its college in 1870. North and South Dakota opened their schools in 1891 and 1884, respectively. Utah and New Mexico

did not open their schools under the Morrill acts until after the passage of the second act, that of 1890. Similar figures for other States not represented on this committee could be shown.

In regard not only to a private institution obtaining this money, but in regard to George Washington University obtaining it, we would call attention to a few facts obtained from the reports of the officers of that organization. On page 9 of the hearing in regard to this bill before the committee on December 10, 1909, President Needham says in relation to the work being done in lines covered by the Morrill acts at the George Washington University:

That expense at the present time, with our present faculty, amounts to \$41,037, according to our present budget. We are carrying on our work. In other words, with a deficit amounting to \$55,000, which we have to provide for this year. Forty-one thousand and thirty-seven dollars of that is for this mechanic arts work.

On page 40 of the hearing in regard to Senate bill 530, which is a duplicate of this bill as introduced in the Senate, we find items from the treasurer's report for the George Washington University. The receipts from the students in engineering and architecture are given as \$19,324.80, and the cost of instruction in engineering and architecture as \$14,300, leaving a net gain of \$5,024.80 to be applied to the defraying of the expenses of administration and maintenance of buildings. There are 247 students in these courses. This means an average contribution over and above teaching cost from these students of \$20.38 each. This certainly does not look like a deficit. Let us examine this page from the treasurer a little further. The National School of Pharmacy and the National College of Veterinary Medicine, two affiliated institutions, are not put down among the items of expense of the university. On the contrary, both of these institutions seem to be sources of a small income. From the former, \$50 was received for graduations, and from the latter \$360 for teaching and \$165 for matriculations, a total of \$575 net gain from these two departments. The only other departments in which the receipts from the students were greater than the cost of instruction were the departments of medicine and dentistry. The largest one item of deficit—fees less than cost of instruction—is for the School of Political Sciences, \$13,697, and the next is for the Columbian College, \$8,617. This, it will be noted, is for deficit for instruction alone in these two departments. Then these departments must in addition be charged with their share of the cost of administration and maintenance of buildings. The cost of the maintenance of the political science hall alone is given as \$3,015.

From these statements of the president of the university and from the treasurer's report, it would seem that the work in mechanic arts is really a paying thing for the university. If it could get the Government to give the university the Morrill fund, it could pay the total expense of this work from the appropriation. And being a private institution it could continue to charge a tuition fee for this work of \$125 to \$150 a year, the receipts of which could be used in defraying the expenses of other departments. We maintain that this is unfair to the people of the District that this university, a private institution, should have the benefit of this appropriation. The only way to let the people have what is their right is to use this

fund to furnish free instruction in a district college of agriculture and mechanical arts.

We noted in the morning papers, and have had otherwise brought to our attention, the fact that the board of education of the District of Columbia last night, with five members present, passed a resolution stating that they could not use this money at the present time, but that it might go to George Washington University temporarily. That, of course, you gentlemen see is farcical on the face of it.

Mr. LEVER. How many members are there on that board?

Doctor SMITH. Nine, and one of the members understood that while this matter would be brought up it would be to ask this committee to appropriate this money to the District of Columbia and leave to some future date the naming of the institution which was to receive it. Consequently he did not attend. That gentleman is expected to be here. Mr. R. R. Horner is the man.

Mr. Oyster said the people had gone over the heads of the board of education. This is untrue, because Mr. James F. Oyster was the first man asked to sign this petition, and he refused, owing to the fact that as a member of the chamber of commerce he had agreed that this money should go to George Washington University. In other words, he gave this money away before he knew what he was doing or before the board of education knew what they were doing. Then they get together, and, after an interview with Justice Harlan, they pass this resolution allowing or saying that the money can go to George Washington University temporarily. What will George Washington University do with the money temporarily? They can not afford to spend any money on what they expect to get, maybe for one year, maybe for two years, maybe not at all, if the board of education is going to step in at any time they see fit and take this money away from them. We submit that the people of the District of Columbia represented here to-day, the people who are interested in the passage of this bill, should receive the benefit therefrom, where our children can be educated free of charge. We know that when a question is brought up in your State affecting the people living in your State, you work and do the best you can for the interests of the people in your State, and that is what we want you to do for the District of Columbia.

None of you gentlemen probably are residents of the District, as you are Members of Congress; but you know, of course, that we have no franchise, and the only way we can obtain our rights is through such hearings as this. We submit that the people of the District of Columbia are entitled to exactly the same rights under the Morrill acts as the people of any other State or Territory in the United States, which we would not obtain if this money should go to George Washington University or to any other private institution—not necessarily George Washington University. We simply use the name of George Washington University because this bill has been introduced containing its name. We do not want this money to go to any private institution. We have a school here with buildings valued at \$490,000—twice as much as most of the States with which I compared it, and an equipment of twice as much—and they certainly can use the money.

However, if you gentlemen think, after due consideration, they can not receive it, we ask that this money be appropriated to the District of Columbia, and then the subcommittee of the Committee on the District of Columbia be asked to designate a public institution to receive this money.

Mr. McLAUGHLIN. Does that figure you give include the value of the land on which the buildings stand?

Doctor SMITH. Doctor Meyers, does it?

Doctor MEYERS. No, it does not.

Doctor SMITH. Doctor Meyers, the principal of the McKinley High School, says it does not include the value of the land. The land is worth about \$150,000.

The CHAIRMAN. The language of the Morrill Act reads as follows:

That there shall be and hereby is annually appropriated, out of any money in the Treasury not otherwise appropriated, arising from the sales of public lands, to be paid as hereinafter provided to each State and Territory for the more complete endowment and maintenance of colleges for the benefit of agriculture and mechanic arts.

How would you reconcile the language of the bill with the proposition to devote the fund to a high school?

Doctor SMITH. If Congress can appropriate this money to a State or Territory which has no institution at all, I do not see why they can not appropriate it to the District of Columbia with an understanding that an academic course be added to the McKinley High School.

The CHAIRMAN. The fund is appropriated to the State with the understanding that it is not to be used until the State shall have provided a college, not a high school or an academic course in a high school.

Doctor SMITH. That will be perfectly satisfactory to the citizens of the District of Columbia, I assure you, Mr. Scott. That is exactly what we want. If you gentlemen think this money can not go to the McKinley High School, then appropriate it to us and let us furnish the institution, and do not give us the money until we furnish an institution.

The CHAIRMAN. Will you present the next speaker, if you are through.

Doctor SMITH. The next speaker will be Mr. P. J. Ryan, chairman of the legislative committee of the Central Labor Union, who will speak in behalf of the laboring people of the District of Columbia.

STATEMENT OF P. J. RYAN, CHAIRMAN, LEGISLATIVE COMMITTEE, CENTRAL LABOR UNION.

Mr. RYAN. Mr. Chairman and gentlemen of the committee, I appear in behalf of the Central Labor Union. It might be well to state to the committee what the Central Labor Union is and who compose its members. The Central Labor Union is composed of five delegates from all the affiliated locals of the labor unions of the District of Columbia. That means to say, that we have about 30,000, composing organized labor in the District of Columbia. Estimating that there are five in the family of each member, and multiplying that by five, will give you some idea this morning of the number of people for whom I speak.

We are heartily in sympathy with the first question involved in this bill, namely, the part contained in the first section of the bill, admitting the District to participation in the fund provided by the Morrill acts. We believe that the District has just as good right to enjoy these benefits as have all the States and Territories of the Union, to say nothing of Porto Rico and Hawaii, which are now participating in this fund. Our population is greater than that of some of the States and Territories receiving the fund. In fact, the Central Labor Union believes that on this part of the bill there is no difference of opinion, either among the members of Congress or among the citizens of the District of Columbia or even among our friends in the States—all agree that the District should be included under the Morrill acts.

But as to the second question involved in this bill, namely, the designation of an institution, known to be a private, tuition-demanding institution, to receive this fund, we have serious objections to offer. The Central Labor Union believes that it was the intent of Mr. Morrill that the instruction offered by these acts should be available to the masses; that these colleges should be schools for the working classes. The laboring man is ambitious for his children. He yearns to give them a good education, but the present scale of wages and high cost of living make it impossible for him to send his boy to a college if he must pay an annual tuition of \$100 or over a year. The Central Labor Union is, therefore, opposed to the passage of the second part of this bill. This matter was discussed at our meeting of March 14, 1910, and a resolution was passed to petition the Senate and the House of Representatives in Congress to extend the benefits of the Morrill acts to the District of Columbia and to name a public institution to receive the money, thus assuring to our children free instruction in a college of agriculture and mechanic arts.

There are now 52 institutions for white students and 16 for colored students operating under the Morrill acts, and in all but six of these instruction is either absolutely free or practically so. A few institutions receive tuition fees from nonresidents of the State or Territory they represent. In several of the States represented by members of this committee not a dollar of tuition fee was collected from any student for instruction in colleges of agriculture and mechanic arts in 1908, according to the reports of the United States Commissioner of Education, namely, Georgia, Kansas, Missouri, North Dakota, Oregon, and Texas. In other States represented by this committee the total tuition fees collected amounted to less than an average of \$6 annually per student, namely, Iowa, Michigan, New Mexico, Pennsylvania, and Utah. Surely you will grant that the children of the working men of the District of Columbia should have an equal opportunity with the children of your constituents at home to receive free instruction in a college of agriculture and mechanic arts. And besides, there are many of the children of your constituents living in the District of Columbia who would like to have as good a chance to go to college here as they would have had had they remained in their home States.

The Central Labor Union believes that it is in harmony with the benevolent spirit of Mr. Morrill and of the honorable men who have been instrumental in getting passed by Congress the acts of 1890 and 1907, extending and enlarging the benefits of the original act, when

it demands that instruction should be free in these institutions. And this seems to be the interpretation which has been placed on the question by most of the States and Territories. We are, therefore, opposed to the passage of the second part of this pending bill.

On another ground we are opposed to the passage of the second part of the bill. The second Morrill Act, that of August 30, 1890, provides that in the provision for instruction in agriculture and mechanic arts there shall be no distinction made as to race or color. The institution named in this pending bill does not admit colored students. The Central Labor Union, in accordance with the letter of the act of 1890, passed a resolution at its meeting March 21, 1910, that Congress be asked to so assign the benefits of the Morrill acts to public institutions in the District that both races might have equal opportunity. There are now 52 institutions for white students and 16 for colored students giving instruction in agriculture and the mechanic arts and receiving money from the Morrill fund. In States where separate schools are maintained for the blacks and the whites the fund is divided between the two schools. We believe this should be done in the District of Columbia. The proportionate amount received by the two schools differs with the different States.

The Central Labor Union has suggested in its resolutions and in its petition to Congress that the McKinley Manual Training School is a suitable institution to be expanded into a college of agriculture and mechanic arts for white students. We have no public college in the District for white students, but we have in the McKinley Manual Training School a plant which, in addition to its present use for the high school, could be utilized for a college of agriculture and mechanics. This plant is superior to that of most of these colleges in the States, both as to value and capacity of buildings and as to excellence of equipment. On these two points I wish to call your attention to a letter written me by Doctor Meyers in response to my request. I wish to submit this letter as a part of my statement. I will file it with the committee and not take your time to read it now, but ask that it be inserted at the end of my remarks. It sets out in full all the facts in the case.

The Central Labor Union has felt it necessary to call attention to this excellent plant, the possibilities of which seem to have been overlooked by the individual members of the Board of Education who have given their indorsement on the second part of the pending bill. The institution named in this bill, by its own treasurer's report, is shown to have only \$52,000 of equipment (furniture, laboratories, and shops), including the equipment of the schools of medicine and law. This is less than half of the value of the equipment at the McKinley Manual Training School. The shop-work facilities at the university named in the second part of this bill are very meager, as its president had to admit in the hearing before the Senate Committee on Agriculture and Forestry, when Senator Crawford asked the question:

Have you any mechanical shop where work in wood, and so on, is done?

To which Doctor Needham replied:

We have a small mechanical laboratory. I have had to resort to all sorts of expedients to get this work in. In the rear of the main building we had a small court, about 40 by 60 feet. We roofed that over, just one story, and put

in a mechanical laboratory. We took everything out of the rooms in the basement of the large building and put in our electrical apparatus which Mr. Westinghouse gave us. Then we have our work for drawing-rooms over in the I street house.

This is a very meager showing as compared with the power plant, machinery in the woodworking, ironworking, and forge shops of the McKinley Manual Training School, which are valued at \$66,705, and an appropriation of \$22,000 available for enlarging this already magnificent equipment for mechanical work. At McKinley Manual Training School the rooms devoted to drawing alone have an equipment valued at \$6,475. In the hearing granted by your committee on December 10, 1909, the president of the university admitted that their laboratory facilities were insufficient, and that the students had to go elsewhere to finish the course. Now, at the McKinley Manual Training School there is already \$17,600 invested in laboratories and available funds for increasing this equipment. Now, we not only want free instruction for our children, but we want that instruction to be given in the best equipped institution possible.

This is another reason why we ask that a public institution be designated. I think I have pointed out enough facts to show that McKinley Manual Training School is equipped several times better for this work than is the institution named in the second part of this bill.

As to the care of the colored students, the problem is one of still easier solution, for there is already in the District an institution of higher learning for this race equipped with excellent laboratories, namely, Howard University, and at the Armstrong Manual Training School, only six blocks away, there are mechanical work shops. We believe a plan could be devised to use both of these plants very economically for the education in agriculture and mechanic arts of the children of the colored citizens.

Just now Congress is saying much about the expense of education in Washington. We believe it is the part of good economy, of good business to make a plant useful through more hours of the day, and therefore think our existing public education plants should be used for colleges of agriculture and mechanic arts. Doctor Meyers shows in his letter that such a plan is perfectly feasible for the McKinley Manual Training School plant.

The addition of such colleges to these schools could be done by simply adding a proper teaching force. That this can be done within the limits of the appropriation is shown by the report of the United States Commissioner of Education for 1908. The smaller States like Delaware, Rhode Island, Maryland, and Connecticut employ from 19 to 30 professors and instructors at a total salary of from \$22,000 to \$30,000 a year. Now, the Morrill fund will in two years be giving \$50,000 a year, which would be ample for the total cost of instruction. I think Mr. Prevost has already demonstrated this in his letter which has been read.

Finally, I wish to call your attention to the fact that of the present graduating class at McKinley High School, which numbers 60, there are 40 who would attend a college of agriculture and mechanic arts if one were added there next fall. Eleven of these boys can not go to college next year if any tuition fee must be paid. We believe that what is true of McKinley High School is true of the

graduates of every other high school in the District, but in the brief time we have been considering this matter we have not had time to get the information.

The Central Labor Union, therefore, asks you to pass the first part of this bill, namely, to extend the benefits of the Morrill acts to the District of Columbia. It further requests that all but the first section of this bill be either amended so as to name public institutions, without tuition fees, or receive the money; or that his part of the bill be cut out altogether. In the latter case, you would be treating us just as the States and Territories have been treated, namely, making the fund available to us, and leaving to us the problem of selecting at a later date the institution to do the work.

Congress has already extended the benefits of the Morrill acts to all the States and Territories without raising the question, until within the last few years, whether the States wanted the funds. The bill of Mr. Morrill of 1862 gave the benefits to all States. Mr. Morrill was a friend of the laboring man. He knew what was good for him. He knew that the great mass of our men must be farmers, mechanics, and engineers. His bill was an offer of help. This offer of help has encouraged every State and Territory to establish a college of agriculture and mechanic arts. We want the same encouragement in the District, the same financial help to found a free public college of agriculture and mechanic arts.

I have a number of petitions with me that are signed. Some have already been handed in. They are signed by members of organized labor, and I desire to file them with the committee. In closing I want to acknowledge the assistance of members of the McKinley High School from whom I obtained considerable data as the basis for what I have said. I thank you, gentlemen.

The CHAIRMAN. You may hand the petitions to the clerk of the committee.

(The letter referred to by Mr. Ryan in his statement, is as follows):

BOARD OF EDUCATION OF THE DISTRICT OF COLUMBIA,
Washington, D. C., March 21, 1910.

MR. P. J. RYAN,
*Chairman of Legislative Committee,
Central Labor Union,
Washington, D. C.*

DEAR SIR: I am pleased to comply with your request of recent date for information concerning the McKinley Manual Training School. For the sake of convenience I shall incorporate your questions in my letter, giving my answer after each question.

1. "What is the value of your buildings?"

The cost of our building as it stands to-day was \$330,000. An appropriation of \$160,000 is available for an extension, and the plans for the extension are nearly completed. This will make the total value of our buildings, exclusive of grounds, \$490,000. The grounds cost about \$150,000.

The building will accommodate about 750 pupils. With the extension its capacity will be increased to 1,200.

2. "How much vacant space in there on the present site?"

At present, about 32,000 square feet. After the completion of the proposed extension 14,000 or 15,000 square feet.

3. "What is the value and nature of your equipment?"

I can not answer this question with absolute accuracy without taking more time than is at my disposal. However, the following figures are close approximations based on the original cost.

(a) Laboratories:

Physics	\$8, 100
Chemistry	5, 180
Home economics	3, 328
Total.....	17, 608

(b) Machinery in shops (wood shop, forge shop, and machine shop), power plant, etc., \$68,705.

(c) Furniture and miscellaneous equipment, about \$15,000.

The rooms devoted to drawing have equipment valued at about \$6,475.

An appropriation of \$22,000 is available for equipment of the extension. Probably half of this will be expended for laboratory equipment and machinery. This will make the total value of equipment over \$125,000, and the value of equipment of laboratories, shops, drawing rooms, and power plant over \$100,000.

4. "Would the present buildings and equipment be adequate to inaugurate a college course in the mechanic arts? In other words, how do your buildings and equipment compare with those of institutions now operating under the Morrill acts?"

Yes; by making use of our plant after 2.45 p. m. With our extension completed there will be ample room for theoretical work in the forenoon and shop work in the afternoon. I have just gone over the courses of study of several of the best institutions in the country, and find that we have most of the equipment necessary to inaugurate such courses in civil, electrical, and mechanical engineering as these institutions are now carrying on. Our equipment for the first two years' work is quite complete. We are equipped to offer college courses in architecture and in home economics.

According to the last report of the United States Commissioner of Education only 20 of the 52 white institutions receiving the Morrill funds have more money invested in buildings than we have, and 13 of these are state universities carrying on other lines of education as well as agriculture and mechanic arts. This school would stand eighth as to values of buildings in the list of those devoted exclusively to agriculture and mechanic arts.

Only 19 of these 52 institutions have more than \$100,000 invested in apparatus and machinery. This school would occupy twentieth place as to value of equipment, including the state universities mentioned above, and seventh excluding them. Only 1 of the 7 has more than \$150,000 invested in equipment.

5. "Would the appropriation provided by these acts cover the necessary expense for instruction if a college course in mechanic arts were added to your present work?"

It would be a time; how long would depend on how rapidly the number of students increased.

6. "How many students are there in the school? What proportion of the male students take the courses in mechanical drawing and the shop work?"

There were 953 students in the school in February of this year, 748 male and 205 female. All of the male students take shop work and mechanical drawing.

7. "What credit is given graduates of your school for courses in mechanical arts when they matriculate for collegiate work in higher institutions of learning, especially those now operating under the Morrill acts?"

Nearly all of the higher institutions to which our graduates go give them credit for shop work and mechanical drawing. The amount of credit varies with different institutions.

8. "How many of the present senior class contemplate taking a college course somewhere next year? How many would probably remain in the McKinley Manual Training School for collegiate work if a college course in mechanic arts were added next fall?"

I find that there are 38 boys in our senior class who expect to enter college somewhere next year. Of this number 29 would attend this school if a college course in mechanic arts were added next fall. Eleven who have not planned to go to college report that they would do so if a college course in mechanic arts were added here.

Yours, very respectfully,

GEORGE E. MEYERS,
Principal.

STATEMENT OF H. P. GREENWALD.

Doctor SMITH. I desire to present as the next speaker Mr. H. P. Greenwald, who is a member of the senior class of the McKinley Manual Training School, and who will speak on behalf of the students.

Mr. GREENWALD. Some time in the course of his high-school career every student has to decide the question, Will I go to college? In this city the question is, in the main, answered in three ways. First, there is the young man who has a sufficient income and who can afford to pay all college expenses. His answer is "yes." Second, there is the student who can not by any means go to college, who has had in all probability, a struggle to get a high school education. His answer is "no." Third, is the student who wishes to go to college but can not because of the high tuition charged, both in and out of the District.

It is as a representative and member of this third group that I am here to-day to present the student's view on the subject of a free college of agriculture and the mechanic arts in the District of Columbia. The senior class of the McKinley Manual Training School in a class meeting voted to support the measure to the full extent of its power. I am informed that, although no action was taken in the matter, the students of the other high schools are in favor of the undertaking. We believe that such a college should be established for the following reasons:

First. The residents of the District are in favor of such a measure.

Second. Many young men who can not now afford a college education would attend such an institution.

Third. The States and Territories of the United States under the Morrill acts have colleges of engineering with tuition practically free to the residents of the State. The District of Columbia has the right to such a college within its boundaries.

To gain some knowledge of the public sentiment on the proposal, petitions asking for such a school were circulated among the residents of the city. These petitions are before you to-day and show that wherever they went there was an overwhelming majority in their favor. The time being limited, only a few of the citizens could be interviewed, but of those who saw the petition I am informed that at least 85 per cent signed, and those who did not sign were not sufficiently acquainted with the matter or were prevented by their official position. The public is undoubtedly in favor of such a school.

While the public will be benefited indirectly, the young man of Washington will be benefited directly by a free college. Many young men who can not now afford a college education would go if free courses were provided.

Several questions were put to the senior class of the Manual Training School, and I will briefly give you the result. Out of a class of 56, 38 intended to go to college. If a free college of agriculture and the mechanic arts was established here, 29 of that 38 would go in it, and in addition, 11, who could not otherwise receive a college education, would attend also. This I think is positive proof that such a school is needed. Seventy per cent of the graduating class of one school would be benefited by it and 20 per cent of that same class

would receive an education they could not otherwise afford. This, remember, is for only one high school, and there are five white high schools in the city of Washington.

Mr. McLAUGHLIN. How many of that class were boys and how many girls?

Mr. GREENWALD. Doctor Meyers, will you inform us?

Doctor MEYERS. There are 3 girls and 53 boys.

Mr. GREENWALD. In addition to this we think the District of Columbia has the right to such a college. Under the present distribution of the funds provided by the Morrill acts the States are able to offer free courses in agriculture and the mechanic arts to their citizens. Why is the young man of Washington discriminated against? Because the District is not called a State, the right has not hitherto been granted, and the students have been left to educate themselves as best they could when their high school course was finished. Nor is this the worst of the injustice. The white young man is discriminated against in the District itself. Howard University, supported by federal funds, offers a course of college grade to colored students in the District, either free or at a cost not to exceed \$10 per annum. Gallaudet College gives free instruction to deaf mutes resident in the District. In a word, the white young man who can both hear and speak has to pay a high tuition to obtain a college education if he lives in the District, while the negro and the person who has lost the power of two of his organs is educated free. Is this right? Is it just? Who can render the most service to his community—a white or a colored man; a perfectly sound man or one who can neither hear nor speak? To be on a par with them in this city we must either change our race, an absolute impossibility, or become deaf and dumb, a thing none of us are anxious to do, even for the sake of a college education.

As if this were not enough, the white young man of the District is still further handicapped. Congress last year passed an act to the effect that no one should take a civil-service examination except in his own State, and that he shall have been a resident of that State for at least one year directly preceding the examination. Many young men take civil-service examinations in the States, come to Washington, and study after office hours. They have to pay tuition, but they are earning salaries of \$700 to \$1,000 a year, and even higher. By the aforementioned act the young man of the District is prevented from doing this. He can get no government work that will support him in college, and work other than government work with the hours so arranged that study is possible is as scarce in this city as the proverbial hen's teeth. How long will this injustice continue? It can be remedied any time you please. A free college of agriculture and the mechanic arts would be a big step in the right direction. The citizens wish it. Many young men will be benefited by it. It is our right to have it. Of the necessity under these conditions there can be no doubt.

There now remains but one point to be settled: What school already established is best fitted to give instruction in the higher branches? In answer to this question, the McKinley Manual Training School has been suggested. You already know of its facilities for this work. You know that the work could be started next fall

with the equipment on hand, and you know that when the proposed addition is completed the school will be among the best-equipped colleges in the country devoting their time exclusively to agriculture and engineering. Furthermore, the course would be free, the thing we most wish to attain. As a high school the McKinley Manual Training School is a standard that the rest of the country is glad to copy. As a college it could attain a rank equally high among the institutions of the country.

Feeling that, as residents of the District of Columbia, we have a right to a free college of agriculture and the mechanic arts, we respectfully urge upon this committee the necessity of establishing such a school and the fact that in our judgment there is none better qualified to receive the benefits of the Morrill acts than the McKinley Manual Training School of this city.

I thank you.

STATEMENT OF M. J. WALDRON.

Doctor SMITH. The next speaker is Mr. M. J. Waldron, who is a national organizer, and who will speak in behalf of the National Independent Negro Political League.

Mr. WALDRON. Mr Chairman and gentlemen of the committee, I want to say first that I represent the National Independent Negro Political League in this country, with organizations and a large membership in New York, New Jersey, Connecticut, Massachusetts, Delaware, Pennsylvania, Ohio, Colorado, Indiana, Illinois, the District of Columbia, and other States that I need not name. I want to say that I come as a colored man. I am a colored man. I am speaking, first of all, for the colored people, and second for poor folks.

I want to thank this committee for the patience and fairness with which you have gone into this matter. I confess that while I had a high regard and a high idea of the committees of Congress, what I know of this committee has heightened my regard for the committees a good bit, more than it otherwise would have. I know you gentlemen are hard worked, and I know the temptation with some people is sometimes to shirk. I do not believe Congressmen ever shirk, but some people do. I know you have all you can do and you could easily pass this by and say you have given all the hearings that are necessary.

I also live in the District of Columbia and am pastor of a church here. I have a child at school and I pay taxes to some extent here. I am interested in the District of Columbia. First and foremost, I am interested in the colored people throughout this country and in the next place I am interested in all the people, especially the poor people. I think that the poor man ought to use every opportunity that is given him, and I want to thank the labor organizations—the Central Labor Union—which, without my knowledge, and without any effort on my part, or even any effort on the part of my race, have been kind enough here to-day to make a very just claim for their colored brethren. I believe that while we belong to different branches of the human family, there is one human race in the world and we ought to be fair toward all. I have no sympathy with anybody who is unfair to people because of their race, color, or creed. I want fair-

ness, and that is all I ask for my people; and justice, which is all I ask for any people. When we get less than that it is certain to put us in a position where we ought to protest.

I want also to say that I have nothing in a personal way against George Washington University. It has departed from the faith. It was once a Baptist institution, and I am a Baptist. As a Baptist I wish to say we believe in the eternal separation of church and state, and I think the George Washington University is perhaps orthodox along that line at least. But with regard to George Washington University, first of all it is a private institution, and I do not believe, and the league I represent, with something like 50,000 active members, does not believe, that private institutions and religious institutions ought to have any direct share in the funds of this Government. We think that is good old-fashioned independent doctrine. We think we ought to stand up for that.

Then the George Washington University, with all due respect to its officers and those who are contributing to it, has seen fit to draw the color line. To give to that organization, that institution, any part of the Morrill fund would be to violate the act with reference to the use of that fund for the schools of the country. I think the time has come for people to be broad enough not to look at men according to the color of their skin, but to remember that culture is colorless. I do not believe it is a thing that this committee wants to see and that this Congress wants to see—an attempt to draw the color line in the matter of education.

So far as intermarriage of races is concerned, and this thing you call social equality, which I have not brains enough to understand, we will let you do what you please. I decide with whom I shall eat and who shall sleep in my bed; I decide whom I shall marry. If you want to take those things in hand I think we will have to let you do that, but I think we ought to enter a protest in the great field of education where there should be no narrowness. Some of the members of my race applied some years ago to George Washington University to enter, even if they had to be put off in a corner or under the stairway; but they were politely told that colored men and colored women were not admitted to that institution.

Let me say in regard to this: In the Southern States where there is a separation of races in the matter of education, there are two institutions, white institutions in South Carolina that receive appropriations from the Morrill fund, and there is a colored institution which received it. They said they would be fair enough with us to divide the fund. I say, if the District of Columbia is to be ranked with the Southern States, then they ought to be fair enough to divide the fund and do what South Carolina is willing to do, at least, in this matter.

In the northern and western States, where the Morrill fund is given to an institution, it is not given to any institution, so far as I can find, anywhere where the colored students are barred from entering such institutions. They are permitted to enter, whether they do or not. There is no color line at least drawn in their catalogues or in the rules of the boards of directors.

Now, with regard to the poor. The majority of the people in this District are poor, and a majority of the children are poor children.

The Bible says we have the poor with us always, and we have, and I think we always will have. Because a man is poor is no reason for taking advantage of him; that is no reason why he should not come into his own. If you were to take the poor people out of this country I think we should all fare badly here. The poor people can not all get in George Washington University.

I have nothing against George Washington University. I think Rockefeller or somebody else ought to give them two or three million. I think it is a good institution and that it is needed here. I think the rich men here need it for their children. I think people in middle life need the institution, and I would do everything in my power to help the institution get along. But I do not think it is right to put this money out of the reach of the poor colored children in this District and the poor white children. If you go to George Washington University you have to pay over \$100 as tuition. Many of these parents who have children there are sacrificing. I know many of my own people, hundreds of men and women, who are sacrificing even bread and necessary clothing in order to send their children to school. I believe that is true among the white people, for I believe the poor white people in this District are just as anxious for education as the poor colored folks.

I want in closing to call attention to the fact that I believe that eternal vigilance is the price of liberty. My people have not learned that as yet, and that is one reason why this organization to which I belong has been brought into being, and one reason why I, who am a minister of the Gospel and feel I have the highest calling in the world, would undertake to belong to a political organization. I do it simply to teach my people that they must watch as well as pray, if you please, gentlemen; that we must be as much interested in the welfare of America as anybody else. I do not believe the colored people ought to be a whit behind anybody else in patriotism, in loyalty to truth, in loyalty to this country. I believe we ought to be loyal. I think my people, many of them, not because they want to, but because of diffidence and ignorance and other things I need not mention, have not come to the point yet they ought to have come to.

This Morrill Act says in its amendment this fund shall not apply to any institution that makes a distinction because of race or color. If we sit down and pay no attention to this and allow George Washington University or any other institution that will draw the color line to come and get the benefit of this enactment and this fund to be appropriated by this bill, the white people of the country will conclude that the negroes do not appreciate what has been given them, and if they do not appreciate it, then they are not worthy of it, and therefore you will say you will not put yourselves to any trouble to see that they get future help. We are here on that ground. It is not a narrow ground, not a ground of prejudice, not a ground of dislike of George Washington University.

I have said these things to bring the law out. But for that I never would have mentioned the fact, because I want George Washington University to live and grow strong, but not to live at the expense of my people in this country, nor at the expense of the poor white people. If I, as a member of the colored race, did not come here to protest,

and this league to which I belong did not come here to make this statement, you might well conclude that we did not care anything about what was done for us.

I am surprised—I do not want to say this, although I ought to say it—I am surprised that Howard University should have gotten scared and run off. It came here and made a plea as being a college. Now, Howard University is an institution for all the negroes in the country that want to come to it. They are making the plea, and I think justly so, for assistance from this fund. I think if you will take up the Senate hearings and see what Professor Kelly-Miller, the dean of arts and sciences, has to say, you will have to admit his argument a strong one. Why he did not press it I do not know, but I know he has not pressed it. I understand Howard University has withdrawn whatever their claim may have been in favor of George Washington University. It was very generous on their part. I think, however, when you look at the back of that you will see it is not so much generosity at all. I am surprised that Howard University should have done that. The university does get a considerable appropriation, but it gets it for all the people in this country.

I am pleading now, lastly, for the children in the District of Columbia, the poor white children and the poor colored children in the District of Columbia. The question has been asked how can we reconcile the law, which requires that there shall be a college, with the fact that the Armstrong Manual Training School and the McKinley Manual Training School are high schools. I want to ask here, Why should not the people in the District of Columbia have a first-class agricultural and mechanic arts college? We are entitled to it.

The CHAIRMAN. That is not the question for consideration now. We are not considering the question as to whether we shall build a college, *de novo*. The question is simply whether through what instrumentality we shall use this Morrill fund.

Mr. WALDRON. Thank you. I am coming to that, and my other statement was just preliminary. I was going to say this, that the Armstrong Manual Training School and the McKinley Manual Training School have the equipment, and they have the students—students who will be very glad to go further and be glad to be trained in agriculture, because many of my people, and I suppose quite a number of white boys in the manual training school, the McKinley school, will go to the farms. If you can appropriate the fund, as we are in favor of doing and hoping that you will do, you will be doing what I think everybody in the District of Columbia wants carried out, which is contained in the first part of the bill, so that the benefit of the Morrill fund will come to the District of Columbia. We think we are justly entitled to it. The only question with us is as to how to apply the fund when it comes. This act waited for twenty or thirty years for certain States in the Union to get ready to make use of it. The funds were there, and whenever they complied with the necessary conditions they got them. We were not in that position. If we had had the opportunity the funds would have been used by the District of Columbia long ago. We say put the funds where we can get them and we will measure up to requirements.

Now, I want to say that I have great respect for the board of education of the District of Columbia, and I believe it ought to be retained; but I am sorry to have to admit that I fear, in their haste to get their action before you, these gentlemen did not give the matter due consideration. I have been informed, and I think reliably informed, that only five members of the nine met, and that they stayed in session only about five minutes. When the question came up, some man produced a typewritten resolution stating what the board wanted, and the whole thing was passed and they had adjourned certainly in less than ten minutes. I say that does not show due consideration. I know they are busy men and women, and realize that, serving as they do without compensation, they render a great service to the District of Columbia.

But I think, however, that such an important matter as this should have more consideration, and I hope you gentlemen will take the same view of the matter. This board of education says that they will let George Washington University have the fund temporarily. I hold that if it is wrong to have it at all it is wrong to have it temporarily. I hold that. And then, if George Washington University gets it George Washington University is going to have grit enough to hold onto it, and we shall have to go to expense and trouble time after time and year after year to get that back from George Washington. I do not believe we ought to be put to that trouble. I do not believe the citizens of this District ought to be put to that trouble.

Just appropriate the money and just let it be known to the District of Columbia that there is \$45,000 a year, or \$50,000, to be used in training these boys here, white and black, in the District of Columbia, in a properly equipped college of agriculture and mechanic arts, and you will not have to wait very long before the money will be gotten, and the money will be used, and used wisely, and used for all the people. I thank you for this hearing.

I want, in conclusion, to say that my people as a whole—there are some exceptions—are loyal citizens of this country and propose to stand by America. This is our home, and we propose to stand by the good men in this country for everything that is just; and it won't be long, if we have your continued good wishes and your broadened sympathies, before many of the undesirable people among us will be done away with and be made into desirable citizens. But the rights and privileges which have already been accorded to us must not be taken away from us. Therefore, I could not allow this measure to come before you without coming here as a representative of my people and making a protest, because we do not want to have a precedent set up that will reflect upon us.

I thank you.

ADDITIONAL STATEMENT OF DR. M. PAGE SMITH.

Doctor SMITH. There is one word in addition I would like to say. I desire to correct myself. I stated at the beginning of the hearing that the board met after seeing Mr. Justice Harlan. I should have said Mr. Richard D. Harlan. I should also like to present to you Doctor Meyers, who is the principal of the McKinley Manual Train-

ing School. In view of his position, he is not able to speak to you, but he will be glad to answer any questions you may have to ask him.

The CHAIRMAN. Have you anything else?

Doctor SMITH. No, sir.

The CHAIRMAN. Does any member of the committee desire to ask Doctor Meyers any questions?

Mr. McLAUGHLIN. I would like to ask with regard to this equipment now in the McKinley Manual Training School—is it largely furnished for and suitable only for the boys of the ages that attend it?

Doctor MEYERS. The equipment of the shops is such equipment as is used in the colleges of mechanic arts. For instance, the boys who go from our institution to engineering schools of higher grade are given credit for shopwork, and are given credit for mechanical drawing. They use the same equipment. To be sure there is some work in advanced years in engineering in the colleges for which we are not equipped. But most of the equipment is such as can be used for the earlier years of college work.

Mr. HAWLEY. When they go from the high school to the colleges how much credit is given to them? Is it the same amount as you credit them here or is a reduction made?

Doctor MEYERS. It varies with different institutions. Some institutions give them full credit for shopwork and some reduce it considerably. Yet the equipment is even better—I know from some who have visited engineering schools—than most of the engineering schools have.

The CHAIRMAN. I think, perhaps, I should submit, to go into the hearing, a letter from Mr. James F. Oyster, president of the board of education, transmitting the resolution of the board to which reference has been made here this morning. When it was decided by the committee to give this hearing, it occurred to me that the board of education should have notice of it, and I therefore addressed a letter to President Oyster advising him of the date and purpose of the hearing, and suggesting that the committee would be very glad to have any representative of the board present who might desire to come; if that was not practicable, the committee would like to have an expression of the board's sentiment in the matter. It was in response to that letter that President Oyster wrote the letter which I have in my hand. It will go into the hearing, and is, in substance, as reported in the morning papers and referred to here.

(The letter from Mr. Oyster, referred to by the chairman, is as follows:)

BOARD OF EDUCATION OF THE DISTRICT OF COLUMBIA,
FRANKLIN SCHOOL BUILDING,
Washington, D. C., March 28, 1910.

Hon. CHARLES F. SCOTT,
*Chairman Committee on Agriculture,
House of Representatives.*

MY DEAR MR. SCOTT: In reply to your inquiry as to the attitude of the board of education with reference to the proposed extension of the benefits of the Morrill acts to the District of Columbia, I have the honor to inclose a resolution of the board adopted at a special meeting held this day.

The board can not urge too strongly the claim of the District of Columbia to its rightful share of the money appropriated under these acts for the education of the children of our citizens in those practical branches of learning which are related to agriculture and the mechanic arts. Certainly no good reasons exist for withholding from the 350,000 inhabitants of this District educational

advantages that are not denied to any similar community in the entire United States or any of its insular possessions.

Inasmuch as the proposition is pending in your committee to extend these benefits to one of our local universities, which has been closely affiliated with the public schools, and has from time to time offered and maintained many free scholarships for pupils and teachers—another university, we understand, having for the present waived its claims—the board deems it wise to defer for the present the submission of any plan for the addition of college work in mechanic arts to the existing curriculum of the McKinley Manual Training School for white pupils and the Armstrong Manual Training School for colored pupils.

The board has concerned itself earnestly during the past few years with the effort to secure larger appropriations for the continuation work of the night schools along industrial lines, hoping also for the ultimate establishment of day schools of a vocational character for children who would otherwise leave school at an early age and before reaching the high school. This extension of industrial education has not included the question of the establishment of college courses in our manual training schools, which is one demanding the most careful consideration.

The board regrets that the necessity of an immediate reply to your inquiry makes it impossible for it to examine the proposal to institute college courses in the manual training schools as thoroughly as the importance of the subject requires and with due regard to the conservation of the various interests connected with primary and secondary education in the District of Columbia.

Very respectfully,

JAS. F. OYSTER,
President Board of Education.

Resolved, That the board of education is heartily in favor of the District of Columbia sharing the benefits of the acts of Congress known as the Morrill acts;

That it is the sense of the board of education that neither the McKinley Manual Training School nor the Armstrong Manual Training School, nor any other high school in the public-school system of the District of Columbia, is at present such an institution as would entitle it to receive an appropriation under said Morrill acts, for the reason that none is a college;

That the board of education as the representative of the public-school system of the District of Columbia has no objection to the passage by the Congress of the United States of the bill now pending therein, known as the Gallinger-Boutell bill, provided the appropriation made by that bill is temporary only, to the end that future appropriations under the Morrill acts, in favor of the District of Columbia, may be asked for in behalf of the public-school system of said District, should it be deemed advisable so to do at any time hereafter.

WM. D. HOOVER.

(Thereupon, at 11.55 o'clock a. m., the hearing was adjourned.)

INSPECTION OF NURSERY STOCK.

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Wednesday, April 27, 1910.

The committee met at 10.30 o'clock a. m., Hon. Charles F. Scott (chairman) presiding.

The committee had under consideration the following bill:

[H. R. 23252, Sixty-first Congress, second session.]

A BILL To provide for the introduction of foreign nursery stock by permit only, and to authorize the Secretary of Agriculture to establish a quarantine against the importation and against the transportation in interstate commerce of diseased nursery stock or nursery stock infested with injurious insects, and making an appropriation to carry the same into effect.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That whenever in this bill the term "nursery stock" is used it shall be construed as including field-grown florists' stock, trees, shrubs, plants, vines, cuttings, grafts, scions, buds, fruit pits or seeds of fruit, and ornamental trees or shrubs.

SEC. 2. That it shall be unlawful for any person or persons to import into the United States any nursery stock except under special permit from the United States Department of Agriculture. Such permit shall be issued by the Secretary of Agriculture to the importer on the receipt of an application stating the number and kind of nursery stock to be imported, the country and district where grown, name and address of the shipper, the port of entry, approximate date of the arrival of such nursery stock, and the name of importer or consignee and destination.

SEC. 3. That all such nursery stock shall be subject to inspection by official experts of the Department of Agriculture at final destination on the premises of the owner or consignee. The Secretary of Agriculture may, at any time, extend the provisions of this act to fruits and vegetables or bulbs or to other plants or seeds not specified in this act and imported from foreign countries whenever he shall deem such action necessary to prevent the entry with such products or stock of dangerous insects or plant diseases.

SEC. 4. That it shall be unlawful for any transportation company, person, or persons after July first, nineteen hundred and ten, to offer for entry at any port in the United States any nursery stock unless accompanied by a certificate of inspection by an official expert of the country from which the importation is made, which certificate shall be made in the manner and form prescribed by the Secretary of Agriculture, certifying that the contents have been examined and found to be apparently free from all dangerously injurious insect pests or plant diseases: *Provided*, That any nursery stock or other described articles offered for entry without such certificate shall be held in quarantine, either at final destination on the premises of the owner or consignee, or at port of entry or other designated place, at the option of the Secretary of Agriculture, and shall not be released by the official expert until its or their freedom from dangerous insect pests or plant diseases shall have been fully established by inspection or treatment.

SEC. 5. That any transportation company, person, or persons who shall receive, bring, or cause to be brought into the United States any nursery stock shall, within twenty-four hours after the arrival thereof, notify the official expert of their arrival and delivery to consignee. The latter shall hold the same, without unnecessarily moving or placing such articles where they may be harmful, for the immediate inspection of such official expert. The official expert or his representative is hereby authorized and empowered to enter into any warehouse or premises of consignee or owner, or any other place where such nursery stock or other described articles are received, for the purpose of making the inspection or examination herein provided for, and such

examination shall be begun, and, if possible, completed within ten days of such arrival thereof.

SEC. 6. That each case, box, package, crate, bale, or bundle of nursery stock imported or brought into the United States shall have plainly and legibly marked thereon the name and address of the shipper, owner, or person forwarding or shipping the same, and also the name of the person, firm, or corporation to whom the same is forwarded or shipped, or his or its responsible agent; also the name of the country and district where the contents were grown.

SEC. 7. That when any shipment of nursery stock imported or brought into the United States is found to be infested with injurious insects or their eggs, larvæ, or pupæ, or there is reason to believe that it is infested with tree, plant, or fruit disease or diseases, the entire shipment, or so much thereof as the official expert shall deem necessary, shall be disinfected at the expense of the owner, owners, or agent. After such disinfection it shall be detained in quarantine a necessary time to determine the result of such disinfection. If the disinfection has been so performed as to destroy all insects or their eggs, and so as to eradicate all disease and prevent contagion, and in a manner satisfactory to the official expert, the trees, vines, or other articles shall then be released. If it be not practicable to fully disinfect such stock, it or such portion of it shall remain infested shall be destroyed.

SEC. 8. That whenever it shall appear to the Secretary of Agriculture that any nursery stock or other described articles or variety of fruit grown in an infested district outside of the United States is being, or is about to be, imported into the United States or the District of Columbia, and such nursery stock or such variety of fruit is infested by any seriously injurious insect or disease, and which insect or disease is liable to become established in the United States, he shall have authority to quarantine against any importations from said district and prevent the same until such time as it may appear to him that any such insect or disease has become exterminated in the country or district from which such nursery stock or variety of fruit is being, or is about to be, imported, when he may withdraw the quarantine.

SEC. 9. That upon complaint or reasonable ground on the part of the Secretary of Agriculture to believe that any nursery stock grown within the United States and likely to become the subject of interstate commerce is infested with injurious insects or diseases new to the United States, the Secretary of Agriculture shall cause the same to be inspected by a qualified expert, and, if need be, placed under quarantine until such infestation is removed.

SEC. 10. That it shall be unlawful for any person, persons, or corporation to deliver to any other person, persons, or corporation, or to the postal service of the United States (except for scientific purposes, and by permission of the Secretary of Agriculture), for transportation from one State or Territory or the District of Columbia to any other State or Territory or the District of Columbia, or for exportation to any foreign country, any trees, plants, shrubs, vines, or other nursery stock which are under quarantine in accordance with the provisions of section seven of this act, or which, on said examination, have been declared by the inspector to be infested with dangerously injurious insects or diseases. Any person, persons, firm, or corporation who shall forge, counterfeit, or knowingly alter, deface, or destroy any certificate or copy thereof, as provided for in this act and in the regulations of the Secretary of Agriculture, or shall in any way violate the provisions of this act, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not to exceed five hundred dollars nor less than two hundred dollars or by imprisonment not to exceed one year, or both, at the discretion of the court.

SEC. 11. That the rules and regulations herein provided for shall be promulgated on or before the first day of June of each year.

SEC. 12. That the sum of dollars, to be available on the day of , nineteen hundred and ten, or so much thereof as may be necessary, is hereby appropriated, out of any moneys in the Treasury of the United States not otherwise appropriated, to carry into effect the provisions of this act.

SEC. 13. That this act shall take effect on and after the day of , nineteen hundred and ten.

SEC. 14. That the provisions of this act shall not prevent the inspection of any nursery stock or other described articles by the authorized inspector of any State or Territory at the final point of destination in accordance with the laws of such State or Territory.

The CHAIRMAN. Pursuant to an order made some time ago, the committee has met this morning to consider the bill introduced by Mr. Simmons, H. R. 23252, a bill "to provide for the introduction of foreign nursery stock by permit only, and to authorize the Secretary

of Agriculture to establish a quarantine against the importation and against the transportation in interstate commerce of diseased nursery stock or nursery stock infested with injurious insects, and making an appropriation to carry the same into effect." It might perhaps be of some interest to the new members of the committee to know that a bill similar to this was introduced in the last Congress and was favorably reported by this committee, and passed the House under suspension of the rules. No effort was made to press it in the Senate during that Congress, however, for the reason that it was late in the session, and also for the reason that the nurserymen throughout the country who had not had an opportunity to discuss the bill while it was pending before the committee made objection to certain provisions of it which they seemed to think would be injurious to their interests. For that reason no effort was made to secure the passage of the bill through the Senate, and it was suggested to the gentlemen representing the nursery interests that during the vacation they confer with the authorities in the Department of Agriculture and endeavor to come to an agreement upon some measure that would be satisfactory to all those concerned. I understand that so far as possible that has been done, and yet it seems that the bill we now have before us is not entirely satisfactory. For that reason gentlemen representing nursery interests of the country have asked to be heard, and the committee of course is very glad to give them an opportunity to be heard.

MR. RUCKER. Mr. Chairman, let me ask you, when was this bill or one similar to it reported in the last session?

THE CHAIRMAN. In the last session of the Sixtieth Congress.

MR. RUCKER. Were any hearings had on that bill at that time?

THE CHAIRMAN. Doctor Howard and perhaps one or two gentlemen from the Department of Agriculture were heard.

MR. RUCKER. That was in connection with the general appropriation bill, was it not?

THE CHAIRMAN. No; it was not in connection with the general appropriation bill. I do not believe, however, that any printed record of the hearing was made.

MR. RUCKER. I merely want to say that so far as I am concerned I was not present at any such hearing, and I did not know that there was any hearing on it.

THE CHAIRMAN. As I remember it, it was a very brief and informal hearing.

MR. RUCKER. It is an original proposition to me, and I am not, of course, committed or biased by any action of the committee heretofore. I put myself on record as against it once before, but I do not want to be understood as saying that I have any bias from that. I will not say that I am in favor of it, nor will I say that I am not in favor of it.

THE CHAIRMAN. Every member of this committee, I may say, holds himself ready to act upon new information that comes before us.

STATEMENT OF HON. JAMES S. SIMMONS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK.

MR. SIMMONS. Mr. Chairman and gentlemen of the committee, primarily my interest in this proposed legislation is due to the fact that the district I represent is one of the greatest fruit-producing sections

of the nation, Niagara County ranking first among the counties of the United States in that respect.

While protection to the vast property of the fruit growers of my section is greatly desired by me, I nevertheless fully realize that the demand for this protection is nation wide.

Experience in dealing with the pests which affect the fruit culture of our country amply justifies this legislation. We find that in the New England States some of the worst orchard and other tree pests of Europe (the gypsy and brown-tail moths especially) have been coming in on imported nursery stock and are being widely distributed. The best information shows that the damage to the country from the wide distribution of the pests mentioned—and some others which have been accompanying such nursery stock during the past two years—would aggregate annually many millions of dollars.

The Secretary of Agriculture informs me that where the pests have already obtained a foothold in portions of the New England States, and particularly in Massachusetts, about Boston, the expenditures now for attempted control—which is only measurably successful—exceed \$1,000,000 a year, and in spite of this enormous expense the pests are slowly spreading.

It must be obvious that this condition of affairs, which is most regrettably bad, is certain to grow worse unless put under the rigid control of the Department of Agriculture; and I contend and believe that the inspection of nursery stock can be made without inflicting any hardship upon the importers, and at the same time protect this vast and growing industry of our nation.

I have had the provisions of this bill carefully considered by the best entomological and horticultural experts of the country and it has been framed with the view to absolutely protect us against the importation of these pests and at the same time safeguard every interest—the importer of nursery stock, the grower, and the orchardist.

There are gentlemen present who are specialists in the matters of entomology, horticulture, etc., who will give you full information on all the phases of this question, and, thanking you for your courtesy, I now yield to them.

The CHAIRMAN. I believe the most logical way to proceed this morning would be to have Doctor Howard, the chief of the Bureau of Entomology in the Department of Agriculture, state to the committee his reasons for believing that some legislation of this character ought to be enacted.

STATEMENT OF MR. L. O. HOWARD, CHIEF OF THE BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE.

MR. HOWARD. Mr. Chairman, the damage done to the crops and agricultural industries of this country through injurious insects alone, not to mention plant diseases, has been conservatively estimated as running at from 800 to 900 millions of dollars a year. By careful study of the points of origin of these different insect pests, it has been shown conclusively that over half of the first-class insect pests in this country have been accidentally imported from foreign countries. On the face of it, it would seem as though we were suffering damage to the amount of \$400,000,000 a year from pests that have been accidentally imported in the absence of any governmental effort to stop such importations.

There are in existence in every other government on the face of the globe regulations to prevent this sort of thing. There has been legislation of the kind which is proposed to this committee now. The United States occupies a unique position among the first-class nations of the world in that it has no national legislation to prevent the introduction of plant diseases and of insect pests. As the chairman has said, a bill was introduced at the last session, and passed the House. It was found that it was not agreeable to the nursery interests. They came together, and in an interview with the chairman of this committee it was decided not to press the matter in the Senate, but, as the chairman has just stated, that the nurserymen and the Department of Agriculture should try to harmonize any differences that they might have in regard to the provisions of such legislation. The nurserymen themselves, be it understood, I think on the whole favored legislation of some kind or another which would look forward to the prevention of the introduction of these pests. I think they have expressed themselves as being almost unanimously in favor of doing something to prevent this danger to the horticultural interests of the country. We have endeavored to harmonize our interests, the Secretary of Agriculture looking forward on the part of the department to economy of this administration, and the nurserymen looking forward to the doing of the work in the way that shall interfere the least with their business. The common aim which I think we all have is protection of the country. I think that is true, is it not?

Mr. ROUSE. Yes.

Mr. HOWARD. We have discussed different forms of legislation. The Secretary of the Department of Agriculture is fully of the opinion that the bill in the form which is now before you is the best from the standpoint of economy and from the standpoint of administration. We have made certain concessions to the nurserymen's national committee, and they have made certain concessions to our view. The latest result by correspondence is that we are perfectly harmonious on the bill, with the exception of one section; that is the section allowing the Secretary of Agriculture to quarantine against any foreign country or any section of a foreign country where it is known that certain dangerous diseases or pests exist that do not exist in the United States.

The CHAIRMAN. That is section 8?

Mr. HOWARD. Section 8. The matter that brought this before us in the most forcible way was the discovery that certain European nurserymen were shipping stock into this country infested with the winter nests of the brown-tail moth and also nests of the gypsy moth and other pests. The department did the best they could in the emergency. It secured, through the Secretary of the Treasury, instructions to the collectors at ports of entry to notify the department on the receipt of nursery stock, whereupon we notified the people at the point of ultimate destination, the state authorities where there were state inspectors to inspect this stock upon arrival, and where there were not state inspectors, under the fund appropriated by Congress to prevent the spread of moths, we paid the expenses of professors of state universities, and so on, and in that way we have been able to handle probably the bulk of the difficulty; but there are small shipments coming in all the time that we can not trace, and the danger is a very large danger.

Last summer, at the direction of the Secretary of Agriculture, I visited Europe to look into the conditions over there, and I received from all nurserymen a promise to do their very best, and I secured the promise of the governmental inspection service of France that they would do their best to prevent this sort of thing in the future, and the same thing in England, and the nurserymen were overwhelming in their promises that such a thing would never occur again; and yet, in spite of those promises, the same thing has occurred again, and infected nursery stock has come into the country, and I received yesterday an egg mass of the gypsy moth from Louisiana. New Jersey, New York, Maryland, and Ohio have all received stock bearing the eggs of the gypsy moth. We think, through the help of the state authorities and the railroads and the custom-houses, we have been able to trace most of this stock and secure the destruction of the eggs, but we are not sure of it. Therefore, it seems to me, what this country needs is the same protection that all other countries have, and we want it in a way that will interfere with the general business as little as possible. We believe, in view of the seriousness of the matter, and in view of the whole aspect of the situation, that this bill fills the requirements of the country.

The CHAIRMAN. Will you give us an estimate of the cost to the Government of enforcing the provisions of this bill?

Mr. HOWARD. Especially, Mr. Chairman, with the bill in its present shape, it will be a comparatively cheap matter. I feel sure that the cost for the first year will not exceed \$25,000. By utilizing the state agencies already in existence, and working under state funds, I think we can do it for less than that.

The CHAIRMAN. If this bill should become a law at this session, would you be able to enforce it without additional legislation, taking the funds from the appropriations you already have?

Mr. HOWARD. I think so, measurably, Mr. Chairman. I think that it will be inadvisable to put this law into its fullest effect the 1st of the coming June. The regulations must be drawn; these regulations must be naturally, through courtesy if for no other reason, submitted to the state authorities; they must be submitted to this very body of nurserymen who are here to-day, to endeavor to make the regulations as little restrictive upon them as is consistent with the subject, and the result is that I hardly think the law can go actively into force until the following spring.

The CHAIRMAN. You state that this country is now suffering from insect pests and tree and plant diseases that have been introduced from abroad. Can you give the committee any estimate of the amount of money the department is spending now in combating diseases and insects that have been imported?

Mr. HOWARD. I can not tell you in regard to the plant diseases, Mr. Chairman. There are representatives here present of the Bureau of Plant Industry, who perhaps can inform you on that subject. But, in the first place, through the Bureau of Entomology, you have provided for the current year \$540,000. Of that \$540,000, \$300,000 are directed against the gypsy moth and brown-tail moth, both of which belong to this class of accidentally imported insects; \$40,000 are directed to the investigation for the suppression of the Mexican cotton boll weevil, which also belongs to this class of accidentally imported insects; \$25,000 are directed to the investigation for the

suppression of insects injurious to fruit trees, largely the codling moth, which also belongs to this class of accidentally introduced insects. The great bulk of the money spent in the Bureau of Entomology is against imported insects. I may say, besides that, as I stated at the former hearing of this committee, that the New England States spent last year over \$900,000 just from those States alone fighting these two insects, the gypsy moth and the brown-tail moth.

The CHAIRMAN. Which are being imported even now on occasional shipments?

Mr. HOWARD. Exactly so. Our effort under the appropriation is simply to keep them in check.

Mr. HAWLEY. Are there any other pests prevalent in other parts of the world that are not here now?

Mr. HOWARD. Very many of them, which, once established here, are extremely liable to spread and cause as much damage as these other insects have been causing.

Mr. HAWLEY. Have the States and Territories of the United States, any of them, effective or good laws for inspection?

Mr. HOWARD. Not all of them. A number of them are absolutely unprotected against pests of this sort.

Mr. HAWLEY. They have no inspection laws whatever?

Mr. HOWARD. No inspection laws whatever.

Mr. HAWLEY. To what States does that apply; what States are there which have no regulation in regard to this?

Mr. HOWARD. A great many of them.

Mr. HAWLEY. About what proportion of the States have no regulation?

Mr. HOWARD. I can not tell you; a number of them.

Mr. HAWLEY. A large majority of them?

Mr. HOWARD. No; I would not say a large majority of them. Some few of them.

Mr. CHAPMAN. Do all the countries from which we import fruit trees have inspection laws?

Mr. HOWARD. No, sir; not all of them. From France we import a great part of our nursery stock, and France has no public-inspection service at the ports of export. The minister of agriculture reported a bill providing for national inspection before the Chamber of Deputies, in November last, and it would have carried a considerable appropriation, but it did not seem to be well understood by the Chamber of Deputies that this money was afterwards to be collected from the nurserymen, and was not to be an expense to the Government; so that the bill failed of passage. The minister of agriculture has written to the Secretary of Agriculture of this country that he has every hope that it will be passed at this session.

The CHAIRMAN. What is the practice of our seacoast States in regard to the importation of nursery stock?

Mr. HOWARD. Wherever they can learn that imported nursery stock is coming in they generally inspect it. New Jersey, for instance, represented by Doctor Smith, and New York, represented by its department of agriculture, have a very perfect service.

The CHAIRMAN. Do they inspect the stock at the port of entry?

Mr. HOWARD. No, sir; at the point of ultimate destination.

The CHAIRMAN. Are there any further questions?

Mr. RUCKER. When did this brown-tail moth first make its appearance in the United States?

Mr. HOWARD. It was about 1889.

Mr. RUCKER. Where?

Mr. HOWARD. At Arlington, Mass.

Mr. RUCKER. In Massachusetts?

Mr. HOWARD. Arlington is a suburb of Boston.

Mr. RUCKER. How was it imported then?

Mr. HOWARD. It was imported on rosebushes from Holland.

Mr. RUCKER. And in that way it got its spread?

Mr. HOWARD. Yes.

Mr. RUCKER. Then where did it commence to make its appearance?

Mr. HOWARD. It spread through the State of Massachusetts and went north into New Hampshire and into Maine, and that is the extent of its spread at the present time.

Mr. RUCKER. It did make its appearance in New York?

Mr. HOWARD. Yes.

Mr. RUCKER. How was its presence there discovered?

Mr. HOWARD. It was discovered by the state authorities.

Mr. RUCKER. By the state authorities?

Mr. HOWARD. Yes.

Mr. RUCKER. Is there a regulation of the State of New York ample, in your judgment, to protect against the spread of the insect?

Mr. HOWARD. I think it is within the last week that the governor has signed a bill appropriating \$50,000 for that purpose.

Mr. RUCKER. Most of these plants are shipped to New York which come from abroad?

Mr. HOWARD. Yes.

Mr. RUCKER. Of course, some of them are consigned to other States?

Mr. HOWARD. Oh, yes.

Mr. RUCKER. With reference to the States to which they are consigned, usually speaking, I think you said that the state laws give pretty good protection?

Mr. HOWARD. Yes; on notification, the state inspector generally has funds to go and inspect.

Mr. RUCKER. And does inspect?

Mr. HOWARD. Yes; and he does inspect?

Mr. RUCKER. In your experience have you discovered the spread of these insects from nursery stock in the interior part of the country, anywhere?

Mr. HOWARD. Yes.

Mr. RUCKER. From nursery stock?

Mr. HOWARD. Yes.

Mr. RUCKER. Where?

Mr. HOWARD. There have been some striking examples from the State of Iowa. Nursery stock imported in the last two winters and shipped to Iowa has been followed in this way. We have notified the state officials, who have been unable to inspect it and have not notified us sufficiently far in advance so that we could secure inspection. Nurserymen in Iowa have reshipped the stock, not only soon, but at a considerable length of time afterwards, and they have reshipped that stock without any possibility of our getting knowledge of it, to other States.

Mr. RUCKER. These importations from abroad are shipped to nurserymen in this country usually, are they not?

Mr. HOWARD. Many of them are shipped to department stores, and there are a great many small things coming in, shipped principally to the people who grow plants.

Mr. RUCKER. To individuals?

Mr. HOWARD. Yes.

Mr. RUCKER. The large bulk of it, however, comes to nurserymen?

Mr. HOWARD. Yes.

Mr. RUCKER. Do you know anything about how they handle that stock when they receive it?

Mr. HOWARD. Yes.

Mr. RUCKER. Can you give us an idea about that?

Mr. HOWARD. I would much rather have Doctor Smith or some of these other state officials give you that. I know that simply by hearsay.

Mr. RUCKER. What is your information about it?

Mr. HOWARD. I would much prefer to have somebody else answer that question.

Mr. RUCKER. I am not asking you about your knowledge, but your opinion, because I expect to ask these others about it later. What examination is made by the nurserymen themselves, or the men in the employ of the Government, or by those in the employ of the States?

Mr. HOWARD. I imagine the nurserymen themselves, while competent to see the larger things, would overlook other matters. Whenever there are competent entomologists, and money to pay for the visits to these nurserymen, I have every reason to believe that the stock is competently inspected after it is unpacked.

Mr. RUCKER. Just for information I would ask you this: Is it not true that nurserymen unpack the crates or the boxes in which stock is received, and handle each piece carefully and systematically on a table?

Mr. HOWARD. Yes.

Mr. RUCKER. And if they find any disease, that stock is not only laid aside, but is destroyed?

Mr. HOWARD. I believe that is true.

Mr. RUCKER. Now, another thing: Where does the brown-tail moth usually make its appearance, on the body or the top?

Mr. HOWARD. On the top.

Mr. RUCKER. The nurseryman who gets that stock ultimately grafts that, does he not?

Mr. HOWARD. Yes, sir.

Mr. RUCKER. In grafting he cuts off the top, does he not?

Mr. HOWARD. Yes.

Mr. RUCKER. What does he do with the top?

Mr. HOWARD. I do not know.

Mr. RUCKER. Is it not your information that he destroys the top or burns it?

Mr. HOWARD. Yes; he ought to do so.

Mr. RUCKER. Is it not true also that the nurserymen destroy the boxes that the stock comes in, and other packages?

Mr. HOWARD. I do not know about that.

Mr. RUCKER. I say, is it not your information?

Mr. HOWARD. I do not know about that. I know in some cases they do not.

Mr. RUCKER. In some cases they do not?

Mr. HOWARD. Yes.

Mr. RUCKER. They ought to do it?

Mr. HOWARD. Yes; I know they ought to do it. They would be likely to do it.

Mr. RUCKER. Ordinary common prudence would suggest that course?

Mr. HOWARD. Yes.

Mr. MARLATT. I was present at one of the largest shipments last year. The boxes and straw packing in were not destroyed. The nurseryman said he would save the boxes and repack the stock and send it to other parts of the country.

Mr. RUCKER. Where was that?

Mr. MARLATT. In Pennsylvania. There were several carloads; and the straw used in packing it in and carrying it from the cars to the nursery was scattered over a mile of country.

Mr. RUCKER. Well, we will get to Pennsylvania after awhile. Your information, Doctor Howard, is that usually they do destroy the packages, and common sense and business sagacity would prompt them to destroy them?

Mr. HOWARD. They ought to do it.

Mr. RUCKER. And they in that way would destroy the eggs in the tops?

Mr. HOWARD. They would destroy the brown-tail moth.

Mr. RUCKER. They would destroy the brown-tail moth?

Mr. HOWARD. Yes.

Mr. RUCKER. So that if the nurserymen cut the tops off and burned them and burned the packing and the boxes, and all that, after a careful inspection of each individual tree or plant there would not be much chance of spread from that nursery?

Mr. HOWARD. No, sir.

Mr. RUCKER. In the States where they have state laws, do they not usually give ample protection?

Mr. HOWARD. Where they have plenty of money and a good law they do give ample inspection.

Mr. RUCKER. There is not a State in the Union now that has not got about as much money as the National Government, I believe, and the treasury is not quite as short.

Mr. HOWARD. Yes.

Mr. RUCKER. Is it not true that they get that inspection?

Mr. HOWARD. They do get inspection in many States.

Mr. RUCKER. You said, I believe, that the nurserymen had some agreement with you and the Department of Agriculture and the chairman of this committee with reference to a bill?

Mr. HOWARD. The chairman suggested to the nurserymen and to the Department of Agriculture that they should try to harmonize any differences that they had in regard to a national bill.

Mr. RUCKER. And they did try to do that?

Mr. HOWARD. We have tried to do so.

Mr. RUCKER. Not in this bill, but another bill that was drawn?

Mr. HOWARD. There was another bill, but the Department of Agriculture had nothing to do with that.

Mr. RUCKER. Did you ever examine that?

Mr. HOWARD. Yes, sir.

Mr. RUCKER. Did not that provide for what the Government ought to do, if it does anything?

Mr. HOWARD. No, sir.

Mr. RUCKER. It did not?

Mr. HOWARD. No, sir; it seemed to me to be a more expensive administration.

Mr. RUCKER. Your estimate is that this bill would cost the Government \$25,000 a year?

Mr. HOWARD. Yes, sir; I think probably less.

Mr. RUCKER. And your idea would be to increase the amount from year to year?

Mr. HOWARD. If it was necessary.

Mr. RUCKER. What is your experience; is it not your judgment that it would be necessary to increase the appropriation?

Mr. HOWARD. Very often expenses are increased year after year.

Mr. RUCKER. Is not that universally true?

Mr. HOWARD. No.

Mr. RUCKER. There are some exceptions?

Mr. HOWARD. Yes.

Mr. RUCKER. I am glad to note the exceptions.

Mr. HOWARD. Yes.

Mr. RUCKER. I think the taxpayers would be glad to note that, too.

Mr. HOWARD. Exactly.

Mr. RUCKER. How many men would it require to do this inspection under the bill we had before us the other day?

Mr. HOWARD. Utilizing the present state service, I imagine the inspection work should be carried on with not more than 12 or 15 additional men.

Mr. RUCKER. By utilizing the state service you mean the state employees or government officials?

Mr. HOWARD. State officers.

Mr. RUCKER. Can we not utilize them without an additional appropriation from the National Treasury?

Mr. HOWARD. Yes, sir.

Mr. RUCKER. So that no appropriation is necessary to utilize them at all?

Mr. HOWARD. No, sir.

Mr. RUCKER. Can not the department, without this bill, by cooperation with the States, as it does to-day, afford the necessary protection without further legislation and further appropriation here at Washington?

Mr. HOWARD. It will afford the same degree of protection that it has been affording in the last two years; it is not perfect.

Mr. RUCKER. The tendency is downward, or is it getting better?

Mr. HOWARD. No, sir; I do not think so.

Mr. RUCKER. It is getting worse?

Mr. HOWARD. The condition is just as it has been in the last year.

Mr. RUCKER. It is not getting worse?

Mr. HOWARD. No, sir.

Mr. RUCKER. It is a condition from which we can derive some consolation? Under state inspection the conditions you have spoken of have not grown worse, but are at least checked?

Mr. HOWARD. Yes.

Mr. RUCKER. And with a tendency to eradicate it entirely?

Mr. HOWARD. No, sir; I do not think so, under the present system, as it is at the present time.

Mr. RUCKER. Is it not your impression that the nursery business, the growing of fruit, and horticultural business, in the United States, is on such a rapid increase that the States will see to it that property of that character, of immense value, is protected by law?

Mr. HOWARD. They should do so.

Mr. RUCKER. Do you not think they will do so?

Mr. HOWARD. Yes; I believe they probably will.

Mr. RUCKER. If they will do it, do you not think it is better to let them do it rather than to have the National Government to take it up?

Mr. HOWARD. No, sir; I think a centralized service will be much more effective than if the States do it only when it is needed.

Mr. RUCKER. You think that the work in the State of Oregon can be handled better from Washington City than it can from Oregon?

Mr. HOWARD. No, sir.

Mr. RUCKER. What?

Mr. HOWARD. No, sir.

Mr. RUCKER. I do not mean to be impertinent, at all, Doctor. I want to be entirely respectful, but I thought that was the effect of your answer. You can not tell us how many States have deficient laws or no laws?

Mr. HOWARD. No, sir; I can not tell you now. I can find out and put that in the testimony if you would like to have me do so.

Mr. RUCKER. I will ask you if in recent years several States have not enacted legislation on this matter?

Mr. HOWARD. Yes.

Mr. RUCKER. And if that is not the tendency?

Mr. HOWARD. I think you are right.

Mr. RUCKER. If the States are let alone to exercise their own inherent power they will eventually and in ample time afford ample protection along these lines?

Mr. HOWARD. If you let it alone, they will do the same damage that these other things have done. We are in almost daily danger, under present conditions, of the importation of some one pest, let alone twenty or thirty, that will do millions of dollars' worth of damage.

Mr. RUCKER. Is it not the easiest thing in the world, Doctor, for one of these little things, an eighth of an inch long or less, to get away any time and to escape inspection?

Mr. HOWARD. Not if the States and the department are working in perfect harmony.

Mr. RUCKER. Under existing laws has not the department adequate authority to cooperate in these matters with the States?

Mr. HOWARD. Perfectly so.

Mr. RUCKER. So that it does not need any additional law for that, and the department is willing to do it, and the States are always willing to have the assistance of the department?

Mr. HOWARD. Yes.

Mr. RUCKER. And they beg for it where they can not get it?

Mr. HOWARD. Yes.

Mr. RUCKER. So that if the department now has adequate power under the existing law to cooperate with the States, would it not be best to try that a little while longer and see whether these dangers are real or, possibly, exaggerated somewhat in the minds of gentlemen who are——

Mr. HOWARD. Oh, no; they are not exaggerated.

Mr. RUCKER. Oh, no; I know you in your opinion have full justification for that, but I thought possibly your opinion was derived from the information obtained from others.

Mr. HOWARD. We consider the whole aspect of the case. In fact, we have been working under just such a condition as you have described.

Mr. RUCKER. What is the objection to the bill that the nursery-men had framed?

Mr. HOWARD. It would be very expensive in administration. It requires the inspection of nursery stock in less lots than a certain number at the ports of entry, and the port of entry inspection service would be an elaborate thing and very difficult to administer.

Mr. ROUSE. Excuse me, Doctor, it says "you may;" it is not mandatory.

Mr. RUCKER. The port of entry? That is, in France, where they put the stock on the vessels to ship over here?

Mr. HOWARD. No; that is here.

Mr. RUCKER. Over here?

Mr. HOWARD. Our ports of entry; New York and Philadelphia, and so on.

The CHAIRMAN. Notwithstanding the vigilance of all the state authorities, it yet remains true, does it not, that the brown-tail moth, the gypsy moth, and the cotton boll weevil, and a considerable number of other pests, have been introduced into the United States?

Mr. HOWARD. Yes.

The CHAIRMAN. And are actually here now?

Mr. HOWARD. Yes.

The CHAIRMAN. They were not only introduced some years ago, but there have been examples of that in recent years—within the past year?

Mr. HOWARD. Yes.

The CHAIRMAN. That have escaped the vigilance of the state authorities?

Mr. HOWARD. Yes; discovered after having become actually established.

The CHAIRMAN. Are there any further questions?

Mr. RUCKER. During this time the Government has participated in the inspection too, has it not?

Mr. HOWARD. Not at all, sir.

Mr. RUCKER. It has not participated in the inspection?

Mr. HOWARD. During the last few years it has participated in the inspection wherever we could find out where things had been taken to. We have helped the States that had no inspection service.

The CHAIRMAN. In any cooperation between the Government and the States, neither party can go further than they are authorized to go by some law, either a federal law or a state law?

Mr. HOWARD. Yes.

The CHAIRMAN. So that your ~~present~~ cooperation might be defective in that respect?

Mr. HOWARD. Yes. The main object, Mr. Chairman, of this bill requiring permits is to enable us to keep track of what is coming in. We have no efficient method of knowing what is coming in at the present time. We know about these large shipments, and we have been able to secure, either through the States or our own men, inspection probably of all the large shipments of nursery stock that have come in since we discovered the advent of the brown-tail moth last winter a year ago; but there must be many small shipments which have escaped us. By the permit system we would know about everything coming in and arrange for its inspection in advance and know where it was being sent, but under the present system we can not do that.

Mr. BEALL. Under this system the point of inspection would be at the point of ultimate shipment?

Mr. HOWARD. Yes.

Mr. BEALL. And not at the port of entry?

Mr. HOWARD. Not at the port of entry.

Mr. BEALL. These instances in which the pests have been imported in the last year or two, have they been discovered by state inspection?

Mr. HOWARD. No, sir; they have been discovered by the notifications from our office. The customs officers have sent us notices of the packages after they have come in, and the railroads have sent us notices of the fact of their being forwarded, and then we have notified the state authorities to look out on certain days for these things.

Mr. BEALL. I understand in certain instances the insects have become established.

Mr. HOWARD. Yes.

Mr. BEALL. Which have come in on shipments of nursery stock?

Mr. HOWARD. Yes.

Mr. BEALL. Now, did these instances occur within States that had a system of inspection for themselves?

Mr. HOWARD. In every case, so far as we know; but in States that have no inspection system shipments may have been made without anybody knowing of it as yet.

Mr. BEALL. And have escaped state inspection?

Mr. HOWARD. Yes, until they have become established. One of the species was discovered by an amateur collector, and in another case it was discovered by a grower of trees.

Mr. BEALL. What nation from which you receive nursery stock as defined in this bill, except France, has no inspection law?

Mr. HOWARD. England has no inspection law; that is, as to outgoing nursery stock. Belgium had no inspection law until this last summer. They have just established an inspection service. It appears, however, not to be a competent service, by reason of the gypsy-moth eggs brought into Louisiana less than a month ago which came on some trees from Belgium. Holland is the only country from which we import largely which seems to have an efficient and competent inspection of the nurseries exporting stock.

The CHAIRMAN. How did you happen to find out about the importation of these gypsy-moth eggs into Louisiana?

Mr. HOWARD. The secretary of the state crop pest commission was notified by me that those trees were coming in, and the point of ultimate destination was given to him. He visited the place and inspected the trees and found this egg mass, which was unknown to him, and he sent it to us for identification.

The CHAIRMAN. Did he meet these trees at the port of entry?

Mr. HOWARD. No, sir; at the point of ultimate destination. He got there before they were unpacked.

The CHAIRMAN. He got there before they were unpacked?

Mr. HOWARD. Yes, sir.

The CHAIRMAN. You say he was unable to identify the egg cluster?

Mr. HOWARD. Yes; certainly. He thought it was a gypsy moth egg mass, and sent it to us.

The CHAIRMAN. Suppose that he had gotten there and found that the nurseryman had unpacked this stock and put it through the usual process; is it likely that that nurseryman would have discovered this and destroyed it?

Mr. HOWARD. I can not say. It depends upon the individual nurseryman, and his care, and so forth.

Mr. STANLEY. Doctor, to what extent will this inspection, as provided by this act, prevent the importation or the increased cost of importation of nursery stock?

Mr. HOWARD. It would not increase the cost of importation of nursery stock unless foreign governments made a governmental inspection service over there and assessed the cost of that inspection upon the exporting nurseryman. That would increase the cost of the importing nurseryman, who would probably have to increase the cost of the nursery stock he imported to American growers.

Mr. STANLEY. Would that be a material increase?

Mr. HOWARD. I do not know. I have not made any estimate on that.

Mr. STANLEY. What I wanted to get at is, would this bill tend to simply protect nursery stock, or would its effect be to prevent importations?

Mr. HOWARD. I think, entirely to protect nursery stock and not at all to prevent importations of the right kind and coming from the right places. I do not think there is a single member of the legislative committee of the National Nurserymen's Association that would be injured in the least; he would simply be protected.

Mr. HAWLEY. You said at the beginning that the United States was the only great nation without an adequate law.

Mr. HOWARD. Yes.

Mr. HAWLEY. And I asked regarding those nations that had no law. I did not quite understand your answer.

Mr. HOWARD. By laws that all other nations have I mean laws protecting against importations.

Mr. HAWLEY. Importations?

Mr. HOWARD. Importations; but for inspections of nurseries which export stock the only competent service, in my opinion, is that of Holland. In other words, France does not care what she sends to the United States, but she is very rigid about what she receives from the United States and these other countries as well.

The CHAIRMAN. Do you know what the character of our law is in regard to nursery stock imported into France?

Mr. HOWARD. Imported into France?

The CHAIRMAN. Yes.

Mr. HOWARD. No; I have not a copy of the law of France. It is a rigid law, providing nothing shall come in.

The CHAIRMAN. Has the present bill been patterned in any respect upon any laws existing in other countries?

Mr. HOWARD. It differs largely from other laws. It is not so drastic and is not so expensive, and it is more easy of use. This law is drafted largely after the laws to prevent introduction of diseased live stock and after the laws to prevent the introduction of diseased game animals and things of that kind.

The CHAIRMAN. Can you give the committee a brief summary of the provisions of this act? We are all very busy, and I doubt if any member of the committee has taken time to read the bill through.

Mr. HOWARD. May I suggest that Mr. Marlatt, my principal assistant, should do that?

The CHAIRMAN. We will be very glad to hear Doctor Marlatt.

Mr. STANLEY. Doctor, I have received some letters here on the subject, and one of the principal objections to this is that it tends to require a breaking of the packages, a tearing open and repacking, which entails enormous annoyance and expense upon importers. Now, whether there is a virtue in that or not, I do not know whether you have touched on that or not. If you have, you need not repeat it for my benefit, but if you have not, I would be delighted to hear from you.

Mr. HOWARD. That was the principal objection to the bill of last year. The present bill does away with that, because it provides for inspection of the premises of the person who receives the goods. They do not have to be repacked at all. It does away with the expense and with that danger.

Mr. HAUGEN. Will not that make it very expensive?

Mr. HOWARD. No, sir; I think it will make it less expensive.

Mr. HAUGEN. The inspector would have to go to the place.

Mr. HOWARD. Yes; the inspector would have to go to the place.

Mr. HAUGEN. Would not that be quite expensive?

Mr. HOWARD. But the point is that the state officials will be very glad to do it; that is their business, you know, to do that very sort of thing.

Mr. HAUGEN. And that expense will be borne by the States?

Mr. HOWARD. That expense is borne by the States in those States which have state laws and appropriations.

Mr. RUCKER. The custom-house officials keep a record of all importations of this nursery stock?

Mr. HOWARD. Yes.

Mr. RUCKER. Showing the consignee, the quantity of shipment, and if they advise the department that that has arrived, it is easy for the department to keep trace of all the stock at least that goes to nurserymen throughout the United States?

Mr. HOWARD. Yes.

Mr. RUCKER. Then all you do is to notify the state representative, and he goes and makes an inspection?

Mr. HOWARD. Yes.

Mr. RUCKER. And that is considered entirely satisfactory?

Mr. HOWARD. Where we have confidence in the state inspector.

Mr. RUCKER. Who appoints these men?

Mr. HOWARD. The States; and as a rule they are very good men.

Mr. RUCKER. I would suppose that the States would select good men.

Mr. HOWARD. Yes; they usually do.

Mr. RUCKER. And usually that would be satisfactory?

Mr. HOWARD. Yes.

Mr. RUCKER. So that so far as the existing law, national or state, goes, it affords ample protection, does it not?

Mr. HOWARD. In such States the existing law of course protects the nurserymen.

Mr. RUCKER. You spoke a while ago about a great many small shipments to individuals, and I believe you said to department stores and to some individuals?

Mr. HOWARD. Yes.

Mr. RUCKER. You likewise have a list furnished by the custom-house officials as to all those importations?

Mr. HOWARD. Not all of them. It frequently happens that small packages are brought over.

Mr. RUCKER. Brought over as baggage?

Mr. HOWARD. Yes.

Mr. RUCKER. Really, what you are seeking to get at in this bill is to not affect the nurserymen, but to cause inspection of these small packages shipped individually?

Mr. HOWARD. Yes; and also to facilitate the inspection of the shipments of the large nurserymen as well.

Mr. RUCKER. Let me ask you this. You spoke a while ago about the discovery of some cluster of eggs of the gypsy moth?

Mr. HOWARD. Yes.

Mr. RUCKER. In Louisiana?

Mr. HOWARD. Yes.

Mr. RUCKER. How big was that bunch of eggs?

Mr. HOWARD. About as big as a half dollar.

Mr. RUCKER. Any man with good eyesight would see that?

Mr. HOWARD. It is frequently overlooked by people who do not know anything about it at all. Those egg masses are not laid in the tops; they are frequently laid down close to the roots, on the trunk.

Mr. RUCKER. You would not expect a nurseryman, zealous and careful of his own interests, to overlook a nest of eggs as big as a half dollar?

Mr. HOWARD. I would not expect him to; no, sir.

Mr. RUCKER. And these had not been overlooked by anybody, in Louisiana?

Mr. HOWARD. These eggs were discovered by the state inspector. It is possible they would have been discovered.

Mr. RUCKER. The state inspector was in charge?

Mr. HOWARD. Yes.

Mr. RUCKER. And if he had not discovered them, it is probable that the nurseryman would have discovered them?

Mr. HOWARD. Very possible.

Mr. RUCKER. Is it not probable?

Mr. HOWARD. Yes, sir; it is very probable.

Mr. RUCKER. Very probable?

Mr. HOWARD. Yes.

Mr. RUCKER. So that while the state inspector did discover this, it was his business to discover it, and he does not deserve a medal for having made that particular discovery?

Mr. HOWARD. No.

Mr. RUCKER. You spoke, in answer to a question asked by Mr. Beall, about certain States where the gypsy moth and the brown-tail moth have been established through the nursery shipments.

Mr. HOWARD. I mean they have been there for a number of years and have spread.

Mr. RUCKER. Been in the nursery for a number of years?

Mr. HOWARD. No, sir; but they have spread from nursery stock.

Mr. RUCKER. Is not that true, that they have spread from nursery stock?

Mr. HOWARD. Yes.

Mr. RUCKER. Might they not spread by some other way?

Mr. HOWARD. Yes.

Mr. RUCKER. Might they not have spread from some one coming to this country with some plants in a gipsack?

Mr. HOWARD. Yes.

Mr. RUCKER. And might they not have spread from somebody coming over, carrying them about his body or clothing?

Mr. HOWARD. Yes.

Mr. RUCKER. You would assume that a nurseryman who does look after his business, as a prudent man would do, guards it with reasonable care and safety, would you not?

Mr. HOWARD. I would assume so, yes, sir; but there are exceptions. The conditions in nurseries abroad have shown me that there are a great many exceptions.

Mr. RUCKER. A great deal of nursery stock is shipped from France into our country?

Mr. HOWARD. Yes.

Mr. RUCKER. In fact, the principal shipments of apple and peach trees come from that country?

Mr. HOWARD. Yes.

Mr. RUCKER. The large bulk of them?

Mr. HOWARD. Yes.

Mr. RUCKER. What would be the effect on the nursery business of this country if, under this bill, any considerable portion of France should be quarantined and refused shipment into our country?

Mr. HOWARD. It would hurt the nursery business, for a while.

Mr. RUCKER. Would it not practically destroy the property that men have worked for and the business they have worked a lifetime to establish?

Mr. HOWARD. It might do so.

Mr. RUCKER. Do you think it is wise for the National Government to dip in—I do not use that word offensively—for the National Government to butt in? I want to use some expression that conveys the idea. [Laughter.]

Mr. HOWARD. Yes.

Mr. RUCKER. For the National Government to butt into State affairs and confiscate the accumulations of a lifetime of the genius and enterprise and diligence of a man?

Mr. HOWARD. That is put very strongly, sir, but you must realize at the same time that there may be in that very region in France some as yet undiscovered disease of the nursery stock.

Mr. RUCKER. I say, though, do you think it would be wise for the Government to do this, or to leave it for the States to deal with?

Mr. HOWARD. I think it is for the National Government to quarantine.

Mr. STANLEY. Would that inspection of the nursery stock of the importer be brought about unless he imported nursery stock infested with dangerous insects?

Mr. HOWARD. There would be no danger except in that case.

Mr. RUCKER. One more question on that. There is no danger except in that case, but if the stock is full of these things, the nurseryman himself may purify it and cut away what is necessary and burn it and destroy it and do all that the department could do?

Mr. HOWARD. Yes.

Mr. RUCKER. As I understand, these hideous insects that have caused this eight or nine hundred millions of dollars of damage, in part—I do not know what part of it—those things are visible to the eye?

Mr. HOWARD. Many of them are.

Mr. RUCKER. Well, they get to be visible before they die?

Mr. HOWARD. Yes; or their effects

Mr. RUCKER. Well, the insect itself is visible, is it not?

Mr. HOWARD. Many of them are not visible to the naked eye. Some of them are almost microscopic; and the diseases themselves are microscopic, of course.

Mr. RUCKER. The nurseryman in his own interest is on the alert to destroy those things?

Mr. HOWARD. He should be. Most of them are.

The CHAIRMAN. And yet diseases have come into the country in nursery stock, and there are some cases in which it has been admitted by the nurserymen?

Mr. HOWARD. There is not the slightest doubt of that, Mr. Chairman. The original importation of the brown-tail moth came in through rose-bushes from Holland, taken to a florist in Massachusetts. Then we have the fact that nursery stock of apples brought into central Iowa, hauled in and sold out a month afterwards, contained these injurious insects, which would indicate that the nurserymen are blind, often, to the existence of even such things.

Mr. PITKIN. Was the gypsy moth introduced on nursery stock?

Mr. HOWARD. No, sir.

Mr. PITKIN. Will you tell us how it was introduced?

Mr. HOWARD. It was introduced by a man who was trying experiments on the caterpillar

Mr. PITKIN. He was an entomologist?

Mr. HOWARD. No, sir; he was an astronomer. [Laughter.]

The CHAIRMAN. Do you know of any other injurious insects that were introduced in that way?

Mr. HOWARD. No, sir.

The CHAIRMAN. By the mishap of an astronomer who was invading the field of entomology?

Mr. HOWARD. No, sir; that is the only case on record, I believe, Mr. Chairman.

Mr. RUCKER. I want to ask the Doctor another question. We have appropriated here \$250,000 or \$300,000 a year for two or three years back to stop the spread of the brown-tail moth in Massachusetts.

Mr. HOWARD. Of the gypsy and the brown-tail moths.

Mr. RUCKER. Yes; there are two of them. What is your judgment as to the common way of spread of those insects—that is, as to the means by which they have spread over the country in Massachusetts?

Mr. HOWARD. The brown-tail moth spreads by flight in the month of June. The gypsy moth spreads by the caterpillars dropping from trees onto vehicles and on the persons of individuals and being carried from place to place.

Mr. RUCKER. In order to stop the spread of the gypsy moth it would be well to stop automobiles and all vehicles, to stop all transportation on the highways?

Mr. HOWARD. Either that, or prevent them from dropping on the highways. The latter is the method we have adopted. [Laughter.]

The CHAIRMAN. It would have been somewhat cheaper in the beginning to have excluded them from the country?

Mr. HOWARD. Yes.

Mr. RUCKER. I am against automobiles, anyhow, and I have no objection to having them stopped. [Laughter.]

Mr. HAWLEY. When you were before the committee on the appropriation bill, did you show to the committee some pictures of nurseries in France and other countries, showing that hedges and trees surrounding the nurseries were infested with insect pests?

Mr. HOWARD. Yes. I have not those pictures with me, but I did show large pictures.

Mr. HAWLEY. Have they been published in any document?

Mr. HOWARD. No, sir; they have not been published yet.

Mr. STANLEY. How does France protect its own citizens from these moths?

Mr. HOWARD. They do not protect their citizens except through the help of nature. These insects, while occurring in considerable abundance there, do not become the pests that they do here, because they have parasites and natural enemies peculiar to their own home which keep them in check. We are now endeavoring to import these enemies into this country to acclimatize them over here.

Mr. RUCKER. One other question, if I may be permitted. I have a telegram here sent me from George G. Atwood, of Albany, N. Y. Do you know him?

Mr. HOWARD. Yes.

Mr. RUCKER. He is assistant commissioner of agriculture up there?

Mr. HOWARD. I do not know his exact official position.

Mr. RUCKER. In this telegram he says that he believes the department has been and is doing work there thus far with excellent results. What would you say about his judgment as to that?

Mr. HOWARD. I think his judgment is sound. I think New York has done wonderfully good work.

Mr. RUCKER. You would think his conclusion should be relied upon?

Mr. HOWARD. I think Mr. Atwood should be relied upon.

Mr. RUCKER. That is what he says—that the state law there is doing efficient work.

Mr. HOWARD. I have not a doubt of it.

Mr. RUCKER. That is all I have to ask.

The CHAIRMAN. I believe it would be of interest and of value to the committee if Doctor Marlatt would give us a rapid review of the salient features of this bill.

Mr. HAUGEN. I would like to ask Doctor Howard one or two questions.

The CHAIRMAN. Very well.

Mr. HAUGEN. As a general thing do the federal officials cooperate with the state officials in the enforcement of the law?

Mr. HOWARD. Wherever possible.

Mr. HAUGEN. Do you think there would be danger of incurring great expense in the appointment of a large army of inspectors of the Federal Government?

Mr. HOWARD. Not at all. It has already been shown that the majority of States have already a competent inspection service.

Mr. HAUGEN. As you know, the objection came up before on the ground of expense. I believe the bill appropriated \$100,000 a year, and a number of them contended that in the near future it might increase to an expense of probably millions of dollars.

Mr. HOWARD. You were in charge of the subcommittee having charge of that bill.

Mr. HAUGEN. Yes.

Mr. HOWARD. And that bill considered the necessity of establishing quarantine at a number of ports of entry, and that service would have been very expensive, if such a quarantine had been established.

Mr. HAUGEN. The point I wish to make is that this bill could be enforced and made effective without incurring great expense to the Federal Government?

Mr. HOWARD. Yes.

Mr. HAUGEN. Through the officials of the States?

Mr. HOWARD. Yes.

Mr. PITKIN. You stated there were certain States that were deficient in inspection force or in money available to handle this matter.

Mr. HOWARD. Yes.

Mr. PITKIN. Is it not true that in such States there are experiment stations?

Mr. HOWARD. That is true, sir.

Mr. PITKIN. Is it not true that those experiment stations each receive from the Federal Government an annual appropriation of from \$15,000 to \$20,000?

Mr. HOWARD. That is true.

Mr. PITKIN. Would it not be possible for you to cooperate with those experiment stations in such States and secure adequate inspection?

Mr. HOWARD. We have been trying to do that in the present emergency; yes, sir.

Mr. PITKIN. You were asked what objection you had to the nurserymen's bill, and I think the only answer you made was that it required inspection of small lots at the ports of entry?

Mr. HOWARD. It would seem to do so; yes, sir.

Mr. PITKIN. Was that paragraph in the bill as originally presented to you by the nurserymen?

Mr. HOWARD. The bill that I saw was handed me by the secretary of the committee of the Nurserymen's Inspectors Association, the State Inspectors' Association.

Mr. PITKIN. That was in December or early in January?

Mr. HOWARD. That was late in December. I think Mr. Symons will remember when it was.

Mr. PITKIN. Was not another bill handed to you in March or April, of 1909, which was formulated at your request by the nurserymen?

Mr. HOWARD. I think there was such a bill.

Mr. PITKIN. Was that provision in that bill?

Mr. HOWARD. I do not recall whether it was or not.

Mr. PITKIN. Was not that provision included in the bill at Boston, in December, at the request of the horticultural inspectors?

Mr. HOWARD. I believe it was.

Mr. PITKIN. So that the nurserymen were not responsible for that particular paragraph?

Mr. HOWARD. I think you are probably right.

Mr. PITKIN. To which you objected?

Mr. HOWARD. Yes.

Mr. PITKIN. You also stated in reply to a question as to the increased cost of nursery stock, that it would increase it. If a quarantine were established, would not that decrease the supply of the raw material, and would it not be bound to increase the cost to the nurserymen and to the orchard men who produce the trees?

Mr. HOWARD. What quarantine do you mean?

Mr. PITKIN. A quarantine against plants from any foreign district?

Mr. HOWARD. It would undoubtedly do so.

Mr. HAWLEY. I would like to ask Mr. Pitkin if he has with him a copy of the proposed bill you have been referring to?

Mr. PITKIN. I have a copy of the bill that was formulated by the nurserymen, submitted to Doctor Howard last spring. I also have one that was considered by the nurserymen and the horticultural inspectors in Boston in December.

Mr. HAWLEY. I ask that Mr. Pitkin be allowed to present that and print it in the record for our information.

Mr. PITKIN. I was going to ask permission later to present this bill.

Mr. HOWARD. If I may be allowed a word, I would say to the question as to whether it would not increase the cost against American importers, I replied yes; and that is the reason they are objecting to that section of the bill. But I think it is one of the most important sections in the bill. The Secretary of Agriculture must have power to foresee these dangers and protect the country from them, and that is the only way he can do it—that is, to quarantine against a certain section where there is a dangerous disease. I hope to be able to show you, through the testimony of two members of the Bureau of Plant Industry, that there are two diseases in foreign countries that this country should be quarantined against absolutely.

The CHAIRMAN. That is following the analogy of our laws in respect to diseases of domestic animals?

Mr. HOWARD. Very true, sir.

Mr. PITKIN. Is it not true that this increased cost which you have just mentioned is going to fall eventually on the ultimate consumer, the man who buys the trees for his orchard?

Mr. HOWARD. Yes; that is very true.

Mr. PITKIN. And the nurseryman?

Mr. HOWARD. Yes; very true.

Mr. HAUGEN. In that connection I would like to ask what is the total importation of nursery stock?

Mr. HOWARD. Can you give me the figures, Mr. Marlatt?

Mr. MARLATT. Between \$300,000 and \$400,000.

Mr. HAUGEN. Now, if the cost of nursery stock is increased by reason of this legislation, that would be small compared to the amount of money expended over here to control and prevent the spread of these diseases, and it would prevent our expending a million or a million and a half dollars a year for the prevention and control of the spread of these different diseases?

Mr. HOWARD. That is a very sound point, Mr. Haugen.

Mr. RUCKER. Do I understand from this that if we pass this law we will not have to make these other appropriations?

Mr. HOWARD. Oh, no.

Mr. RUCKER. This is simply one more?

Mr. PLUMLEY. You will save that other million dollars.

Mr. HOWARD. We have still got to appropriate money to take care of the things that have come in under the old system.

Mr. RUCKER. I may say that I am afraid that this will not decrease the other appropriations at all, but I am afraid they will maintain their position and normal growth each year, and this bill would year by year call for larger appropriations.

Mr. PLUMLEY. It might save the other million dollars that you would have to appropriate later to take care of the results if you let these things come in.

The CHAIRMAN. I think we had better defer argument between the members of the committee until the committee has heard all the gentlemen who are here. There are a number of them, and the time is limited.

Mr. RUCKER. If the other gentleman is willing to accept the reprimand, I am.

The CHAIRMAN. It is not a reprimand; it is merely a suggestion. I think it would be well if Mr. Marlatt gave us a brief exposition of the salient points of the bill.

STATEMENT OF MR. C. L. MARLATT, ASSISTANT CHIEF, BUREAU OF ENTOMOLOGY, DEPARTMENT OF AGRICULTURE.

Mr. MARLATT. Mr. Chairman and gentlemen, I think the discussion has brought out a good deal of the contents of the bill. Section 1 is merely a definition of nursery stock as meant in this bill, to save the trouble of repeating half a dozen lines whenever it is mentioned in the bill.

Section 2 provides for the permit system for the introduction of nursery stock. In other words, the introducer or importer applies to the Department of Agriculture for a permit just as he does in the case of animals—live stock. That permit is granted. The permit is granted unless the country or particular plant is absolutely quarantined against; in other words, the granting of the permit is mandatory. That simply is to make the Department of Agriculture acquainted in advance with the fact of the importation, so that the total importations, the sources of those importations, and the ultimate destination of those importations is known in advance to the Department of Agriculture, and the department is thus able to provide for the necessary inspection, promptly and efficiently. I believe the nurserymen have not objected seriously to that section; I mean they have withdrawn their objections to that section.

Section 3 provides for the inspection of such nursery stock at point of destination. This provision was made in deference to the nurserymen themselves. They insisted on that provision in order to escape the danger of unpacking and repacking at the port of entry. At first we were very insistent on having the inspection at the port of entry, because if you stop a dangerous thing at the port, you have it under much better control than if you have it 2,000 miles inland and then attempt to stop it; but the inspection, as the nurserymen proved to us, would be so great in bulk that the warehouses and force necessary to take care of the stock would make it a very expensive process, and, against our better judgment as to the actual security as a whole, we have accepted in this bill this provision as to the inspection at point of destination. It now simply remains for that inspection to be made as efficient and thorough as possible, and to be done by men capable of detecting these things; for instance, of knowing a patch of gypsy moth eggs from a patch of fungus, which it resembles. I want to say that that has been done in deference to the nurserymen, because they may claim that we have not given them anything in the compromise.

Section 4 provides for a foreign certificate. We do not intend to rely on that foreign certificate. Dr. Howard has shown that the foreign certificate can not be relied on. We are getting now, this spring, stock that has been inspected and yet is still infested. We simply require that foreign certificate to put the foreign governments on their guard; to make somebody responsible over there, so that if that foreign certificate comes over here and we find the stock infested we can put the thumbscrew to work on the other side and make them put better men at the work. It is simply an additional safeguard. I think, however, there is no objection to that. There is a chance that some stock may come to this country without a certificate, through no fault of the importer. We have provided there not necessarily for the destruction or rejection of such stock, but for its inspection at the port of entry or at final destination, at the option of the Department of Agriculture. In point of fact, that will relate more particularly to small lots of stock which men may bring in or private individuals may bring in without, perhaps, any knowledge of this bill at all. That is to do something to save them, and if the stock is perfectly safe to go into the country. We can stop such stock at New York, and have it inspected at New York, and if we can not do that we will have to send it to Washington and inspect it here; or if it is a large shipment we can follow it to its destination. I think there is no objection to that on the part of anyone.

Section 5 provides for the notification of the Department of Agriculture, by the transportation company bringing the stock, of the arrival of such stock, and it provides for and authorizes the official expert to enter the warehouses, etc., and make the examinations.

Section 6 provides for the proper labeling of the stock. There is no objection to that. It provides that the label shall show the country from which it came, shall show the name of the exporter, the name of the importer, and the destination. I think there is no objection to that.

Section 7 provides for the notification of the department and for a quarantine. Of course there can be no objection to that. It is simply a question of who shall bear the expense, and in point of fact we put this on the importers, because the Department of Agriculture can not

very well go to every place and build a fumigation house and provide the material for fumigation. All large nurserymen have their own means and places for fumigation, and we simply require them to fumigate it themselves. If it is infested, they would have to do that themselves anyway. That expense is put upon them.

Section 8 is the section which you have discussed here at considerable length. It provides for the quarantining of districts which are infested with some insect or disease which can not be detected by inspection or kept out by quarantine. In other words, if there happens to be a district in France, or in Asia, which is infested by some disease or some insect that can not be detected, the only thing to do is to quarantine against that district. Plant diseases are like human diseases, they are in the blood, in the plant itself, and it is much safer to shut off importation, because it is much better that there should be a loss of \$2,000 to nurserymen than a loss of \$10,000,000 to the country at large. That is what the nurserymen object to, however; on what ground I can not see, because it protects them as much as it does the general growers of the country.

The CHAIRMAN. Can you give any special illustration of a disease that might have been prevented if this section had been a law, or is there now in existence in any country that you know of any disease which would render that country liable to quarantine under the provisions of this act?

Mr. MARLATT. There are many illustrations that could be given of the need of this section. There is now, as Doctor Howard has just stated, in Europe a certain disease of evergreens which is considered very serious by the pathologists of the Department of Agriculture—I believe some of those men are here now—and it is impossible to keep that disease out by any system of disinfection. You can not kill it by disinfection. The only way to keep it out is to keep the stock out. The San Jose scale is now well known to the entomologists or inspectors; but when it came into this country no one would have seen it. You or I would not have noticed it if it came in on nursery stock. In a case of that kind if some insect is so small that it can not be seen it will escape inspection. There are many insects that work in the inside of plants, borers. For instance, we destroyed a large number of cherry trees that came as a gift of the city of Tokyo. The reason for their destruction was that they were infested by borers. These you can not get at; they are inside, in the wood. We had the whole lot of trees burned. In cases of that kind, where you know of the existence of some harmful insect in some district of a foreign country, you can keep it out only by quarantining against that district.

The CHAIRMAN. Had those trees been inspected at any foreign port by any state authorities?

Mr. MARLATT. They had not. They were shipped directly to the city of Washington.

The CHAIRMAN. If they had not been consigned to the President of the United States, would they have been subject to inspection at San Francisco or Seattle or wherever they were entered?

Mr. MARLATT. They would not, unless they were destined for the States of California or Washington. Anything destined for the State of California is inspected by the state officials. If it is shipped through, they pay no attention to it, except that we have an arrangement by which they notify us that certain stock is passing through their State, and they give us the destination, and in that way we

have been able to have a great deal of stock inspected that would otherwise have escaped inspection.

The CHAIRMAN. Excuse me for interrupting you.

Mr. MARLATT. I wish to add one thing more. The objection of the nurserymen to this section 8 is that they are afraid that the Secretary of Agriculture may put a quarantine on some important importing district abroad, as for instance France, and in that way stop at once and absolutely the importation of their nursery stock—that is, seedling apples, etc., and also perhaps after they have already made their contracts, which may be made several months in advance. The answer to that is that this bill is not designed to apply, that this section does not apply, to the gypsy and browntail moths, which are the insects which are likely to get on their stock. In other words, the object of the bill is not necessarily to prevent the introduction of stock which may be infested with such things as the gypsy moth and the browntail moth, but to catch that infestation at the point of destination, and destroy the insects, and not destroy the stock. In other words, if we use such insects as the gypsy moth and the browntail moth as a reason for quarantining, it would put a stop to all nursery importation whatever. This section applies to new things that you can not fumigate and that you can not necessarily discover by inspection. In case of such new things, which might be just as injurious to nurserymen and to orchardists as to the man who grows ornamental stock, and to the forest interest of this country, the nurserymen should be just as glad to have them kept out as the other interests involved.

Mr. RUCKER. Under this section a quarantine could be made against France on account of the gypsy and browntail moths, could it not?

Mr. MARLATT. It could, yes; but the whole purpose of this section of the bill is to protect against new enemies.

Mr. RUCKER. But you could have a quarantine under this bill against France on account of the gypsy and brown-tail moths?

Mr. MARLATT. Yes, we could. If we find, for example, as in France last year, that all the nursery stock that is coming in is heavily infested, I believe that that district should be absolutely quarantined against. It is not an easy matter to kill these little brown-tail larvæ by fumigation, and moreover, the nests get broken, and the little larvæ a quarter of an inch long may get scattered through the whole stock. Suppose you were inspecting a tree as long as this room and 2 or 3 inches in diameter, how could you tell that you had caught every one of those larvæ?

Mr. RUCKER. Do they import that kind of trees?

Mr. MARLATT. Yes; they import considerable quantities of trees 30 feet long; do they not, Mr. Rouse?

Mr. ROUSE. Twenty feet long, Doctor.

Mr. MARLATT. That is the big stock. Much of the smaller stock comes in large bundles, and sometimes there will be thousands of plants in a bundle, and these bundles are passed over very rapidly; they must be. They come by carloads, and there are only two or three inspectors. When it comes to saying that a nurseryman can find all these things, it is absolutely impossible; it is an impossibility. In point of fact, the infestation with many foreign tree pests in this country is a demonstration of what the nurserymen have let get through.

Mr. RUCKER. Sometimes the Department of Agriculture lets something get out?

Mr. MARLATT. Necessarily. This bill is not a perfect bill, and we may be called to account yet for not prohibiting the importation of nursery stock in the same way other nations do.

The CHAIRMAN. What is that?

Mr. MARLATT. The same prohibition that Germany and France and Holland have against the United States—absolute prohibition.

The CHAIRMAN. Does not France permit the importation of any nursery stock from the United States?

Mr. MARLATT. I think not. The San José scale has practically put a stop to all exportations of nursery stock abroad, except England. They even inspect the fruit that we send abroad. We have great difficulty in getting our apples in. Every barrel of apples is looked at to see if there are any insects, and although the Department of Agriculture has endeavored to impress upon them the fact that if the scale is carried on an apple it is practically impossible for it to get onto a nursery tree, there is much fruit that is rejected. Their prohibition as to nursery stock against us is absolute. We are making no prohibition whatever. We are trying merely to regulate the importation and see that what is harmful is kept out, and let the nursery importation business go on.

The CHAIRMAN. They are not as considerate of our feelings as we have been of theirs.

Mr. MARLATT. The point has been made that, according to statistics of the Bureau of Statistics, a little over \$300,000 was the value of the business as reported to the customs during the year 1908. We will admit that these men make a bigger profit than that.

Mr. HAWLEY. Do you know how many importers there are between whom that business is divided?

Mr. MARLATT. I can not tell you, but there are not many large importers. There are 10,000 nurserymen, I suppose, in this country, but very few of them import stock. They raise their stock, a great many of them, and they also buy from the big importers.

The cost of that business, i. e., value of the imported stock, is \$300,000. The expense to Massachusetts and New England of controlling only two of these pests, the gypsy moth and the brown-tail moth, is a million and a half.

Mr. RUCKER. What do you mean by the cost to the nursery business?

Mr. MARLATT. That is the value of the business.

Mr. RUCKER. The value of the plants, or the profit?

Mr. MARLATT. No; that is what they paid duty on.

The CHAIRMAN. The value of the stock they imported?

Mr. MARLATT. As declared at the custom-house. They may sell that \$300,000 worth for \$600,000, which would be that much more.

Mr. RUCKER. I think they do.

Mr. STANLEY. Is there a specific or an ad valorem duty on that stock?

Mr. MEEHAN. It is a specific duty.

Mr. MARLATT. The point about section 8 is that it applies to things that we can not detect, and there might be something brought in, like the San José scale, which has cost us \$50,000,000 to fight; so that it would be cheaper for the United States to pay the nurserymen of this country the \$600,000 they may get from that stock, and

save money in the end. I mean, stop the importing business and pay them their loss; it would be much cheaper in the end.

Mr. RUCKER. That is, for the Government to pay them?

Mr. MARLATT. Yes; much cheaper.

Mr. STANLEY. What loss is that?

Mr. MARLATT. The loss of the nurserymen. I mean, if we should pass a measure of absolute prohibition against the importation of stock that would put an end to the importing business, and they would lose their profit of \$300,000 a year.

Mr. RUCKER. You think it would be safer?

Mr. MARLATT. If it was my business I should pay it and stop the importation.

Mr. STANLEY. But can we get the same things without importations?

Mr. MARLATT. These things that are imported are not new and rare and exceptional plants; they are grafting stock, apple seedlings and plum stock, and ornamental trees, such as ash and elm, etc. All of that stock is grown in this country by nurserymen.

Mr. STANLEY. In effect, this importation is simply bringing foreign-grown stock into competition with home-grown stock. It is a purely commercial business.

Mr. MARLATT. It is a purely commercial business; yes, sir. The nurserymen of this country, many of them, grow their own stock. The importation of such stock is therefore to some extent in competition with the home business. It has developed that certain stock can be grown cheaper in France and Holland than here, and I believe the nurserymen claim that the stock for grafting purposes is better foreign grown than home grown. That may be a sound argument, but there can be no doubt if this country should set up a Chinese wall against such importations we could take care of our own needs. However, I am being led into the discussion of another subject. Excuse me. That is my personal view, but not on the bill before you.

Section 9 of the bill, I think, there is no objection to. It provides that if some of these things get into the United States and get established, the United States, through the Department of Agriculture, can quarantine that district until the local infestation has been stamped out.

Section 10 simply provides a penalty, and does not need discussion, and the other sections also do not need discussion.

Mr. HAWLEY. Then I understand there is only one section in dispute?

Mr. MARLATT. So far as I know from correspondence this section 8 is the only one which has been materially objected to.

The CHAIRMAN. We will be glad to learn more definitely about that from the gentlemen who are here representing the nursery interests. We are very much obliged to you, Mr. Marlatt.

(At 12.10 o'clock p. m. the committee took a recess until 2 o'clock p. m.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Wednesday, April 27, 1910.

The committee met at 2 o'clock p. m., Hon. Charles F. Scott (chairman) presiding.

STATEMENT OF MR. C. L. MARLATT—Continued.

The CHAIRMAN. I believe, Doctor Marlatt, you had concluded your comment upon the bill before us. Mr. Rucker now would like to ask you a few questions.

Mr. MARLATT. I will be glad to answer them, if I can.

Mr. RUCKER. Yes. I have forgotten where you quit, but referring to section 8, that is the section which authorizes a quarantine, I believe?

Mr. MARLATT. Quarantining of foreign districts?

Mr. RUCKER. Of foreign districts. Section 7, I believe, authorizes the quarantine here?

Mr. MARLATT. The following section, section 9, authorizes the quarantining of stock grown in the United States.

Mr. RUCKER. Yes. As I understood you to say, this bill, rather than to be a prohibitive measure so far as the importation of this stock is concerned, is really designed to promote the introduction of nursery stock under supervision and inspection?

Mr. MARLATT. Exactly.

Mr. RUCKER. It is not your idea that it ought to be excluded?

Mr. MARLATT. I gave it as my personal belief that the country would be safer if nursery stock were excluded, but the idea of the bill is not to exclude it.

Mr. RUCKER. What is your official position?

Mr. MARLATT. My official position is represented by the bill.

Mr. RUCKER. Your official judgment is that it is not to be quarantined?

Mr. MARLATT. The bill is a compromise between ourselves and the nurserymen.

Mr. RUCKER. Your personal notion is that it ought to be quarantined?

Mr. MARLATT. If necessary to quarantine. This bill provides for a quarantine.

Mr. RUCKER. Yes.

Mr. MARLATT. I said my personal view of the matter would be that the country would be justified in making an absolute prohibition against all importations, except of new plants, and under the supervision of the Department of Agriculture; in other words, putting ourselves in exactly the position that France and Germany, and practically all the European countries are now in, in relation to us.

Mr. RUCKER. In reaching that conclusion have you taken into consideration that to prohibit importations of stock from foreign countries, particularly France, would practically put the nurserymen of the United States out of business?

Mr. MARLATT. I have considered that point, but as it has not come up to the bureau, it has not been made the subject of argument.

The nursery business of this country is a big business. I suppose there are nurserymen, numbers of them, in every county in the United States; there were several in my county in Kansas, and it is very close to your State. That would make in the United States thousands—10,000, perhaps 100,000, I have not looked it up. Of importing nurserymen, the big ones you can count on the fingers of your two hands; at least, they would come within a hundred. These importing nurserymen distribute this seedling stock. They either grow it to its proper size or distribute it to those who grow it.

Mr. RUCKER. What do you mean by distribute it?

Mr. MARLATT. They sell it.

Mr. RUCKER. To whom?

Mr. MARLATT. To other nurserymen.

Mr. RUCKER. So that the little nurserymen get stock from the big ones?

Mr. MARLATT. Yes; they get some from importers and some is home grown.

Mr. RUCKER. Where else would they get it?

Mr. MARLATT. How do they get it in France? They grow it there, and why should they not grow it here?

Mr. RUCKER. About what percentage of the nursery stock in the United States is grown here?

Mr. MARLATT. The great mass of the nursery stock of this country is grown here.

Mr. RUCKER. The bulk of it?

Mr. MARLATT. Yes; the bulk of it. The amount which is imported is trivial.

Mr. RUCKER. Eighty-five or 90 per cent of it?

Mr. MARLATT. The imported stock is worth about \$300,000 at customs, and you know what the nursery business of this country amounts to; it is in the millions.

Mr. RUCKER. Eighty-five or 90 per cent of it, probably, is home grown, of all the nursery stock used?

Mr. MARLATT. That would be a fair guess; I think that would be reasonable.

Mr. RUCKER. Is your judgment based on recent statistics or ancient statistics?

Mr. MARLATT. The latest statistics available are those of the Department of Commerce and Labor.

Mr. RUCKER. Let me ask you this. Either your opinion is wrong or mine is wrong. Is it not a fact that a few years ago your conclusion was about right, that most of the nursery stock was produced or raised in the United States, but that in recent years, instead of most of it being raised here, 90 or 95 per cent of it is shipped here?

Mr. MARLATT. The answer to that question depends entirely on the definition of nursery stock. If you mean simply the apple seedlings and pear seedlings, probably the greatest percentage of them is now grown abroad; but that is a trivial part of the nursery business of this country. The nursery business includes everything that is grown in nurseries for planting. That includes ornamental stock, poplar and ash, and everything that is grown in the plant or tree line.

Mr. RUCKER. What percentage of fruit trees is grown here and what percentage is imported?

Mr. MARLATT. I can not answer that question.

Mr. RUCKER. I will ask you if it is not true that about 90 per cent of the apple, pear, and quince are imported?

Mr. MARLATT. You are speaking now of these imported in bundles, or rooted seedlings?

Mr. RUCKER. Yes; seedlings.

Mr. MARLATT. Those are not fruit trees. They are made into fruit trees after several years of work in this country. They plant the apple seeds in France. They get them from the pomace from the cider mills. France is a great cider country; and if you had ever been over there and drank some of their sour cider, you would never want to drink it again. They plant the seeds and the little plants sprout up, and these are seedlings, and are imported in enormous numbers.

Mr. RUCKER. However little those may be, they are the little things upon which you graft the stock, and ultimately make the apple trees?

Mr. MARLATT. Yes, we graft the scions upon these stocks.

Mr. RUCKER. And that makes the pear and apple trees which fill the orchards?

Mr. MARLATT. Yes.

Mr. RUCKER. And from which you get the fruit?

Mr. MARLATT. Yes.

Mr. RUCKER. That is what I am speaking about. The most of the fruit trees are brought in here from abroad?

Mr. MARLATT. The rooted seedlings are now mostly shipped from abroad.

Mr. RUCKER. If they were kept out, where would the nurserymen get these roots and seedlings?

Mr. MARLATT. They could get them where your father and my father got them before they were imported; they would grow them.

Mr. RUCKER. They would grow them here?

Mr. MARLATT. Yes.

Mr. RUCKER. Is it not true, and do you know whether it is true, or whether it is true or not, that the stock they import from France is much better than any stock that can be gotten here?

Mr. MARLATT. That is the contention of the nurserymen. I do not know anything about it.

Mr. RUCKER. Who is best qualified to know about that? Are not they about as well qualified to know about that as anybody?

Mr. MARLATT. A former Secretary of Agriculture elaborately maintained the opposite view, namely, the Democratic Secretary from Nebraska.

Mr. RUCKER. Well, we will have another one after a while. He may not come from Nebraska, but we will have one. [Laughter.]

Mr. MARLATT. He may come from Missouri. He (the Secretary) said that old stock of his father's—that is, apple trees grown by his father—lived fifty years. They were grown on seedlings that were grown in this country; and he maintained that in his big apple orchards out in Nebraska the trees now would not live more than twenty years.

Mr. RUCKER. It has been so long since we had a Democratic Secretary of Agriculture that I would like to get onto recent dates.

Mr. MARLATT. Very well.

Mr. RUCKER. And I want to ask you, now——

Mr. MARLATT. That has answered your question.

Mr. RUCKER (continuing). What is your notion about it, if you have any idea about it, as to the difference in quality, of the home-grown or the imported from France, which is the best?

Mr. MARLATT. I have had some experience in orchard growing myself; I am now the owner of two or three orchards, and these orchards were not any of them planted on imported stock, and they are just as good as any orchards I have seen. I think we can grow our own stock—in direct answer to the question—and just as well as they can in France.

Mr. RUCKER. Notwithstanding the nursery people say differently?

Mr. MARLATT. The nursery people say differently, but there may be a different explanation of that.

Mr. RUCKER. Do you not know that it is a fact that the people of the State that sent the chairman of this committee to Washington now produce a large number of seedlings?

Mr. MARLATT. Yes; I lived in that State.

Mr. RUCKER. Oh, you did?

Mr. MARLATT. Yes; it is my State.

Mr. RUCKER. You know there are hundreds of millions?

Mr. MARLATT. I do not know that they grow them now at all.

Mr. RUCKER. Is not the Kaw Valley full of them, these little things, home-grown nursery stock?

Mr. MARLATT. Yes; there is plenty of nursery stock raised in the Kaw Valley.

Mr. RUCKER. Do you not know that the nurserymen can raise them for about one-half what it costs to ship them from abroad? Do you not know that that is true?

Mr. MARLATT. Not of my own knowledge.

Mr. RUCKER. You are not advised about that?

Mr. MARLATT. I am not advised.

Mr. RUCKER. If it is true that the nursery people, those who grow seedlings in Kansas, can furnish the nursery dealers in the United States with their stock at one-half what it costs to get it from France, do you not think if the stock here was as good as the other that these nurserymen would take the stock here in preference to paying twice the price for stock from abroad and subjecting themselves to these national inspection laws?

Mr. MARLATT. I can not answer on a subject with which I am not acquainted.

Mr. RUCKER. You have lived in Kansas?

Mr. MARLATT. That is my native State; yes, sir.

Mr. RUCKER. Yes. Mr. Chairman, how is that; is that true or not?

The CHAIRMAN. I do not know anything about it. I would suggest, Judge Rucker, that the best witnesses on that line of questions would be the gentlemen who are in the nursery business.

Mr. RUCKER. That is exactly what I think. That is the reason I was trying to find out whether Doctor Marlatt's testimony was as good as that of the nurserymen.

The CHAIRMAN. The Doctor is an entomologist, and will no doubt answer all questions in relation to that branch of the question; but there is a gentleman here, to my knowledge, from Kansas, who can answer your questions.

Mr. RUCKER. I will undoubtedly ask him something similar to that. How would you account for that, Doctor, if it is true that the State of Kansas can supply millions and hundreds of millions—or at least millions—of these little seedlings, and still, even with the option to buy them, they go to France and pay twice as much as it would cost to get them here; must it not be because they believe they are getting better stock?

Mr. MARLATT. That would seem to be evident.

Mr. RUCKER. Would you not incline to think that their judgment is wise about that, and that they know their business?

Mr. MARLATT. I am quite willing to accept that. I am not arguing on that at all.

Mr. RUCKER. Yes.

Mr. MARLATT. I stated in my testimony this morning—

Mr. RUCKER. I believe you had something to do with preparing this law?

Mr. MARLATT. I had something to do with the drawing up of the bill.

Mr. RUCKER. With the original enterprise of the getting up of the bill?

Mr. MARLATT. With the framing of the bill. It was not an individual matter.

Mr. RUCKER. Five or six gentlemen, whom you know, originally planned this whole proposition and promoted it?

Mr. MARLATT. Yes; I was connected with them.

Mr. RUCKER. And you helped to supervise and suggest what was to go into the bill?

Mr. MARLATT. Yes.

Mr. RUCKER. That bill gives authority to the Secretary of Agriculture or some one under him who shall have charge of it, possibly yourself, if in his judgment it is wise, to quarantine against France or any other foreign country?

Mr. MARLATT. Exactly; a district.

Mr. RUCKER. Any part of it, or all of it?

Mr. MARLATT. Any part of it, or all of it.

Mr. RUCKER. Of that whole country?

Mr. MARLATT. Yes.

Mr. RUCKER. You say, in the administration of this law, you would not do that, although your personal judgment is that we ought to entirely prohibit importations?

Mr. MARLATT. No; my statement was that section 8 gives authority to the Secretary of Agriculture to quarantine against the foreign districts which may contain some insect or disease which can not be kept out—that is the point—by inspection and disinfection; nothing more. That may be a district of 10 miles, or it may be a whole country. It may not happen in our lifetime, that such an occasion may arise.

Mr. RUCKER. If you were given the administration of the law, you would quarantine?

Mr. MARLATT. I certainly would if the country was jeopardized by stock, and we could not otherwise protect from.

Mr. RUCKER. You spoke about some trees being diseased in such a way that you could not detect it by the eye, or remedy it by fumigation.

Mr. MARLATT. Yes.

Mr. RUCKER. As I recall it, you said that that disease was in the blood or the sap?

Mr. MARLATT. Yes.

Mr. RUCKER. Now, is the disease in the blood of a tree communicable or contagious? Would it communicate to another tree set off 125 feet?

Mr. MARLATT. Yes.

Mr. RUCKER. It spreads from tree to tree?

Mr. MARLATT. Yes.

Mr. RUCKER. Where does it make its appearance, in the full-grown tree or in the small stock?

Mr. MARLATT. That varies with the disease. Some diseases are apparent to the eye at some seasons of the year, and unrecognizable at other seasons; and the spread may be by natural agencies such as wind or water, or by insects.

Mr. RUCKER. That disease which is not discernible would spread from adjoining trees in the same orchard, or across the road?

Mr. MARLATT. Exactly, as corn smut will spread from adjoining ground.

Mr. RUCKER. That is visible; you can see that?

Mr. MARLATT. It is visible only in a certain stage. It is invisible for months.

Mr. RUCKER. Yes. The \$300,000 you spoke of as being the value of the nursery stock imported, that meant the value for tariff duty, for custom-house dues?

Mr. MARLATT. Certainly.

Mr. RUCKER. That does not include the value of it, because the cost has not entered into it——

Mr. MARLATT. Very much is added to its value by manipulation afterwards.

Mr. RUCKER (continuing). Even of transportation?

Mr. MARLATT. Yes.

Mr. RUCKER. And the dues that they pay on it would double the value anyway?

Mr. MARLATT. Yes.

Mr. RUCKER. So that whereas you use that figure, \$300,000, the value would really be \$600,000?

Mr. MARLATT. That is for the nurserymen to say.

Mr. RUCKER. Now, let me ask you one general question. Are you conversant with the laws of the various States with reference to preventing the diseases of fruit trees, and so on?

Mr. MARLATT. In a general way. That is, I have gone over all these laws.

Mr. RUCKER. You have gone over all the laws?

Mr. MARLATT. Yes.

Mr. RUCKER. What do you think of the efficiency of the state laws?

Mr. MARLATT. It varies enormously in different States; in some States the efficiency is at high-water mark; in New York, for example.

Mr. RUCKER. Do any of the laws give efficient protection?

Mr. MARLATT. Some of the laws are good, and some of the States have practically no laws. Where they have laws, the laws are practically all modeled after the same plan.

Mr. RUCKER. Would you say that these laws, if executed, would accomplish the object desired?

Mr. MARLATT. If adequate laws were on the statute books of the different States, and were efficiently administered, undoubtedly they would accomplish what is desired.

Mr. RUCKER. Now, to get back at it again; are the laws now on the statute books adequate?

Mr. MARLATT. Not in all cases.

Mr. RUCKER. In any case?

Mr. MARLATT. Yes; I think so.

Mr. RUCKER. You think some of them are adequate?

Mr. MARLATT. They are adequate to this extent. For instance, the laws in New York, which is one of the best administered States, are adequate to the extent that they enable the inspectors there to detect things that are self-evident; that is, things that are usually visible. It does not help at all in the detection of obscure or new things that these men do not know anything about. It does not help at all in the detection or prevention of disease which is latent.

Mr. RUCKER. Of course nobody can discover anything about a disease if nobody knows anything about it at all.

Mr. MARLATT. Often the disease is discovered in Europe, and it comes in on imported plants. The plants themselves may not show it when they are imported.

Mr. RUCKER. As I understand, some of these States have fairly good laws?

Mr. MARLATT. It is not so much a question of good laws as it is of the administration. The laws are probably all modeled after the same plan.

Mr. RUCKER. Is the administration effective in any of the States?

Mr. MARLATT. The administration is adequate in New York for the easily recognizable things as I have stated.

Mr. RUCKER. But it is not adequate under any other law you have stated?

Mr. MARLATT. Yes; it is adequate in other States—not fully. In Illinois there is a very good system.

The CHAIRMAN. How is it in Missouri?

Mr. MARLATT. In Missouri—I can not answer as to that.

Mr. RUCKER. In Missouri I understand they have a law?

Mr. MARLATT. Missouri is one of the poorer States in that respect.

Mr. RUCKER. How is that?

Mr. MARLATT. Missouri is not so well guarded as some of the other States.

Mr. RUCKER. Unfortunately, we are a little farther from Washington than New York is. Probably they may do better in the future.

Mr. MARLATT. Yes.

Mr. RUCKER. In administering this law you would do as you do now—cooperate with the States?

Mr. MARLATT. Yes.

Mr. RUCKER. And those state authorities are governed by the state law?

Mr. MARLATT. But in those States where there is not an efficient system we would supplement it. Where we could be sure of the state action being efficient, we would use it; but we would not use it where

it was not so. Where it was not efficient, we would supplement the state action and make it efficient.

Mr. RUCKER. You have been working at this several years?

Mr. MARLATT. Yes.

Mr. RUCKER. And you do not know which States are not efficient?

Mr. MARLATT. I know only a few that are.

Mr. RUCKER. Practically you would ignore the state law and take charge of the whole thing, except in a few States?

Mr. MARLATT. Oh, no; there are trained men in all the States. We would use all the state entomologists.

Mr. RUCKER. What I am leading up to is this. Do you not believe it is possible, and not only possible but highly probable, that with such cooperation on the part of the Agricultural Department with the authorities in the States as you are now authorized to give under existing law, every remedy and every protection that is sought in this bill can be obtained?

Mr. MARLATT. If I had thought so, I should not have drawn up this bill.

Mr. RUCKER. You think not, then?

Mr. MARLATT. Yes; I think not.

Mr. RUCKER. For what reason could it not be done?

Mr. MARLATT. The introduction of the gypsy or the brown-tail moth into Missouri or Louisiana, or into Arkansas, or into any of those Western or Middle States, where there is no very strict system of inspection, where it is purely a matter of a man's doing it if he has time or letting it go if he has not, because there is nothing to compel him to do it and it is purely perfunctory, the introduction of any of these pests or any other pests of equal danger, would simply mean their establishment in such States. If there was one such shipment, you would never exterminate the pest. It would simply mean you would have another center of contagion, well established, in a State where the laws were lax, and a general spread over the country. That is why we want to have a general federal inspection that will equalize the matter all over the country and give equal security everywhere, instead of merely such security as a state inspection will give. Even this is not absolute, as I have said. Absolute security comes in stopping the stuff on the other side. This is a compromise measure.

Mr. RUCKER. Your opinion is based on the hypothesis that the state inspection will not stop it, but that the state inspection will be very inefficient; that nobody can properly administer a law outside of your department of the Government?

Mr. MARLATT. I beg your pardon, I did not make any reflection on the States at large.

Mr. RUCKER. I just wanted to find out how far you did mean to be understood.

Mr. MARLATT. I repeat what I have said, that the present system is efficient in some States, while it is absolutely inefficient in others, and absolutely indifferent in still others. That is all.

The CHAIRMAN. And is it not our universal experience that no matter how jealous a State may be of its rights when it is considering the question of a law of this or any similar nature, yet when the test actually arrives, and the question of controlling it is uppermost, it does not hesitate to come to the Federal Government and lay its

burden down? That has been our experience in New England, at any rate.

Mr. RUCKER. That is the only experience we have had, is it not?

The CHAIRMAN. How about Texas and Louisiana and all the other States?

Mr. BEALL. Texas has not had any.

Mr. RUCKER. Has it not had any trouble with this bob-tail moth?

Mr. BEALL. No; but we have had the boll weevil.

Mr. RUCKER. Yes; the boll weevil.

Mr. MEEHAN. Doctor, you referred this morning or this afternoon to the fact that these seedlings can be grown in this country, and I asked where and in what parts of the country you can produce the myrobalan plum successfully.

Mr. MARLATT. My statement was not that of an expert. I said it might be possible to grow these seedlings. I believe it to be possible to grow those seedlings in this country as they were grown in the days of our fathers and are still grown in some places.

Mr. MEEHAN. You stated it as a positive fact before these gentlemen who are studying the question.

Mr. MARLATT. I corrected it, as I have now stated.

Mr. MEEHAN. Can you produce good pear seedlings and quince stock and Mannelto rose stock?

Mr. MARLATT. My statement was, as I now repeat, that I believed it is possible. I am not issuing it as a dictum. I said I believed it was possible to grow these things. I stated it this morning perhaps not so well.

Mr. MEEHAN. Do you know that in Kansas they have been trying to grow the Mahaleb cherry stock, and those stocks are so inferior that they sell for one-third less than imported stocks?

Mr. MARLATT. I do not question your statement, at all.

Mr. MEEHAN. It is a fact; and the same is true as to all other fruit stocks, pear and apple stocks.

Mr. MARLATT. Apple stock is only one small part of the fruit stocks that are used. In point of fact, this bill permits the importation of just such stock. There is no prohibition on it whatsoever. It merely requires that it shall be clean, and I do not see how you can object to that.

Mr. RUCKER. But I understand that while that is true, if in the region from which this stock is imported abroad there should be some disease, either in the blood or in the limb, then you might—

Mr. MARLATT. If it affects the plant to be imported.

Mr. RUCKER (continuing). You might quarantine against everything in that territory?

Mr. MARLATT. No; against the plant that may convey the disease.

Mr. RUCKER. Yes; against that specific plant.

Mr. MARLATT. Yes; exactly. If cattle were infected with a disease, we would not put a prohibition on the importation of horses unless they were equally liable. If the apple tree is free from a disease that affects the pine, the prohibition of the importation of pines would not affect the importation of apple trees at all. This provision for regulation by the Department of Agriculture is not put in here to foolishly and mercilessly throttle business, but to protect the business.

Mr. RUCKER. I know that is not true to-day, but I was afraid that somebody else might come in and be in control of the Department of Agriculture who would be less careful.

Mr. McLAUGHLIN. You are looking for a change of administration?

Mr. RUCKER. I do not want to compliment any gentleman present, but I do think we might have a change.

Mr. MEEHAN. You referred to the importation of the small fruit seedlings as only a small part of the stock that could be brought over and grown here. Do you know that 90 per cent of the ornamental stock is grown on the other side?

Mr. MARLATT. You pay very little money for it at the custom-house if that is the case.

Mr. MEEHAN. We pay the tariff, 25 per cent ad valorem.

Mr. MARLATT. Just so. We import very little ornamental stock into this country.

Mr. MEEHAN. It took the inspectors three weeks in Pennsylvania to inspect one shipment and do it carefully and thoroughly. Now, you referred this morning also to the fact that in one case—in a nursery you visited last year—you saw the inspectors and the nursery-men were not taking particular pains to destroy the packing material and that it was scattered all around. You made that statement?

Mr. MARLATT. Yes; I made that statement.

Mr. MEEHAN. Did you not also make the statement that no brown-tail moths or anything of that sort—well, brown-tail moths and gypsy moths—had been found in the Holland stock?

Mr. MARLATT. I did not make that statement.

Mr. MEEHAN. I think, if you will refer to the stenographic notes, you will find you made a statement of that sort.

Mr. MARLATT. Doctor Howard may have done so. I made no such statement.

Mr. MEEHAN. I stand corrected, then. It may have been Doctor Howard who stated that. Do you know that all of that stock you referred to was brought from Holland, six or eight carloads?

Mr. MARLATT. I was advised that it was Holland stock.

Mr. MEEHAN. Then if this gypsy moth and the brown-tail moth have not been discovered on any stock that comes from Holland, was there any neglect in not destroying that packing material. Was there any reason for destroying it?

Mr. MARLATT. There was.

Mr. MEEHAN. What reason?

Mr. MARLATT. We found other equally dangerous insects on that stock that had escaped the inspection on the other side.

Mr. MEEHAN. Such as what?

Mr. MARLATT. Such as the masses of eggs of one of the worst forest pests in Europe. What was the name of that, Doctor Howard, do you recall?

Mr. HOWARD. The nun moth.

Mr. MARLATT. That is an insect that is much worse in Europe than the gypsy or the brown-tail moth. It is their worst pest in Europe. That came in with your stuff.

Mr. MEEHAN. Yes; it came in with our stuff. You were there when they were examining that stock?

Mr. MARLATT. I was there part of one day.

Mr. MEEHAN. And some of your assistants were there two or three days?

Mr. MARLATT. Two or three days, I should say; three days at least.

Mr. MEEHAN. Do you know that the Pennsylvania state inspectors, three of them, were there for three weeks examining that stock?

Mr. MARLATT. So far as I know, all of the insects found on that stock were found by our men.

Mr. MEEHAN. I ask you if you do not know that the Pennsylvania state inspectors were there for two or three weeks examining that stock?

Mr. MARLATT. I do not know about that.

Mr. MEEHAN. If they were, do you not think it was thoroughly inspected by those state inspectors?

Mr. MARLATT. I have no doubt that they did their duty. You informed me that the nursery had been examined by the state inspectors and pronounced clean, and yet we found a serious infection of the San José scale. You promised to have it eradicated at once. This was after the inspection by the state men, and you had a certificate to the effect that the whole nursery was clean. That simply shows, as you force me to speak of it, that the state inspection is not perfect. Our own inspection is not perfect. We are all human. I might miss something that would be discovered by the state inspectors.

Mr. MEEHAN. How long have the brown-tail and gypsy moths been known in the New England States?

Mr. MARLATT. Those questions were answered by Doctor Howard. The gypsy moth has been known for thirty or forty years.

Mr. MEEHAN. In the New England States?

Mr. MARLATT. In Massachusetts.

Mr. MEEHAN. And in the other New England States down as far as New York City, for instance?

Mr. MARLATT. No, sir; the gypsy moth has a very limited range southward.

Mr. MEEHAN. It has come down practically as far as New York City?

Mr. MARLATT. Oh, no.

Mr. MEEHAN. In the last fifteen or twenty years, since the gypsy moth and the brown-tail moth have been scattered around through the New England States, there has been a considerable amount of nursery stock shipped to the nurseries in all parts of the United States from those nurseries there, great quantities of it?

Mr. MARLATT. We are going to stop that sort of thing now if this bill passes.

Mr. MEEHAN. But there have been large quantities sent from there?

Mr. MARLATT. I can not answer that. There are no very important nurseries around Boston.

Mr. MEEHAN. It has been shipped to all parts of the United States.

Mr. PLUMLEY. That has been done under state inspection?

Mr. MARLATT. That has all been covered by state inspection.

Mr. MEEHAN. But that was shipped, was it not, to all parts of the United States?

Mr. MARLATT. Can you name some large nurseries near Boston?

Mr. MEEHAN. Yes.

Mr. MARLATT. What do they ship?

Mr. MEEHAN. The Framingham nursery has a couple of hundred acres; then there is W. H. Wyman & Co., and the New England Nursery. There are a dozen very large nurseries there shipping to all parts of the United States.

Mr. MARLATT. They have succeeded in distributing these things pretty generally throughout New England.

Mr. MEEHAN. Have they been found in any other section of the United States?

Mr. MARLATT. No.

Mr. MEEHAN. If this thing has been in existence up there for so many years, and there have been so many hundreds of carloads shipped from those States to all other sections of the country, is it not remarkable that it has not spread to other sections of the country?

Mr. MARLATT. I can not answer these questions, because I am not advised as to the basic statement of fact. My own understanding in regard to New England is that very little nursery stock has been shipped out of the infested region. I fancy that my friend here would be very loath to receive stock from there.

Mr. MEEHAN. We and every other nursery receive many carloads from there. We admit it.

Mr. MARLATT. Then, all the more reason for this bill.

Mr. MEEHAN. But we say that there has never been any brown-tail moth.

Mr. MARLATT. The gypsy moth has been located in New York State in three localities direct from New England nurseries.

Mr. MEEHAN. I simply wanted to bring out the fact that despite the fact that it has been so prevalent for so many years through the New England States, and there has been an immense amount of nursery stock shipped to all parts of the United States from there, which can be very easily substantiated, the gypsy moth or the brown-tail moth has not been propagated in any other part of the United States, looking as though it would not grow in any other section of the United States—would not live in any other section of the United States. That is the point I wanted to bring out.

The CHAIRMAN. If there are no further questions, I believe that is all, Mr. Marlatt. Doctor Howard tells me that Dr. John B. Smith, the state entomologist of New Jersey, is here this afternoon, and that he will not be able to remain longer, and I would like to ask him to appear before the committee. He thinks perhaps he can give us some information that will be of value, for the reason that he has had a great deal of practical experience in the inspection of imported nursery stock.

STATEMENT OF MR. JOHN B. SMITH, ENTOMOLOGIST OF THE STATE OF NEW JERSEY.

Mr. SMITH. Mr. Chairman and gentlemen, I have been in the work of inspecting nurseries as long, perhaps, as almost any other inspector in this country. Several years ago it became necessary for me, for another reason, to visit some of the European countries, and I did visit the principal nursery-growing districts in Holland, some of those in Belgium, but practically none in France, although I visited the inspection authorities there. I also visited several of the nursery-growing districts in Germany. I was looking particularly after the

matter of exporting American fruits, and particularly New Jersey fruits, into foreign countries, and especially into Germany, and I had an opportunity of getting at the attitude of these foreign officials, so far as American stock was concerned, and so far as the exportation from European countries of European stock to America was concerned. In the first place, the idea was that presumably everything that came from America was bad, and should be shut out, and all the laws were administered on that basis. Into France it was almost impossible to get anything from America, either stock or fruits. Into Germany it was nearly as bad. I had an opportunity of seeing the way they handle stock and fruits at Hamburg, at the port of entry there. They make their inspection at the port of entry. The theory upon which their laws are drawn is that, first of all, the people are to be protected; the fruit growers and horticulturists and agriculturists generally. They are the ones for whose benefit the laws are drawn and executed. The persons who ship stock into the country and the persons who receive it are only secondarily considered.

Mr. STANLEY. Allow me to interrupt you there. Do these countries discriminate against the United States? I mean, do they exclude our nursery stock and import the nursery stock of other continental European countries, or do they exclude all stock?

Mr. SMITH. They practically exclude all nursery stock coming from the United States.

Mr. STANLEY. And do they exclude that from other countries also?

Mr. SMITH. No; not from other countries. They admit stock from other countries on the execution of certain affidavits. But practically all nursery stock coming from the United States is excluded, because they want to exclude all danger of infection, or danger of introduction of certain insects, that are known to be here, into their countries. In other words, they want to do away with all chance of introducing American pests into European countries; and on the other hand, the feeling on the part of the exporter on the other side was that practically anything that they had to sell was good enough to go into the United States; and when that matter was questioned and the question of making inspections and examinations came up, and the question of the attachment of certificates of inspection to stock, when some of the States passed laws prohibiting the entry of stock without a certificate, they said, "Of course we will give them a certificate," and they did. They gave a certificate, but the people who signed the certificates, in a great many cases, never saw the stock, and anybody who chose to pay the fee to the man who wrote the certificates could get one; and on stock going into the State of New Jersey we found certificates in a good many cases without any date on the certificate at all or without limitation as to time, without date of expiration, and the shipments badly infested with nests of brown-tail moths and other insects. Therefore, so far as certificates from France are concerned, I do not think they are worth the paper they are written on, and I would not accept a shipment from France into the State of New Jersey, no matter what certificate was on it.

I started to talk about the shipments, or about the examinations that I saw in Hamburg. It was just about the time that apples were being shipped in there. At the pier in Hamburg, every shipment of apples is examined; that is, a number of barrels were taken from each shipment, and those barrels were opened and the apples were dumped

out on the floor and they were examined by inspectors who knew their business pretty thoroughly, and they started in a general way to pick out things that looked suspicious to them, and after picking those out they would take two or three baskets full and send them to different inspectors, and each inspector reported on his own particular basket of apples that he happened to get hold of, and whenever there was anything suspicious on those apples, it did not make any difference, practically, what it was, those apples were condemned, and the entire shipment was condemned on the samples that were examined. In other words, they went on the basis that if there was anything at all suspicious, that was a sufficient amount of ground for condemning the entire shipment. The basis was that they were not going to run any risks at all of introducing a dangerous insect into their country, and that their first duty was to protect the people of that country against the introduction of injurious insects.

Mr. McLAUGHLIN. Have those laws, and has that kind of enforcement of those laws, been effective?

Mr. SMITH. Yes, practically. They have not had any introduction of the insects that have bothered us within recent years.

Mr. RUCKER. Where were those apples you speak of shipped from?

Mr. SMITH. From different portions of the United States; some of them from Virginia and some from the West, I guess. In the shipments that I happened to see examined, most of them came from the South. I have had the reports of the Hamburg inspecting station, and they give in detail the number of shipments examined, what they have found in each shipment, and the disposition that has been made of each shipment. They are very accurate in their methods, and they make very full reports on everything that they have done.

The CHAIRMAN. Do you think this policy is in the nature of retaliation, on account of the like policy on the part of this country in regard to the importation of other articles?

Mr. SMITH. No; I do not think so, because that policy was instituted by them years ago, and that is in accord with their general line of work. It was not intended, I think, in any way as a discrimination against the United States.

Touching upon the importation of nursery stock, I went through some of the important nursery districts in these foreign countries, and principally in Germany, the districts that produce the seedlings for forest trees. I was interested particularly in that matter, and I did not look up so much the matter of the fruit trees.

Two or three years ago, when this matter of the introduction of the brown-tail moth first came up before me, I received notice from the New York department of agriculture, as did practically the inspectors of all the other States, that nests of the brown-tail moth had been found in shipments received from abroad, and that it was advisable to examine these shipments. I sent out a circular letter to all our nurserymen, and soon after I received an answer from them as to the receipt of nursery stock. The very first shipment we examined came from France, but through a New York nursery. We found 50 nests of the brown-tail moth on that shipment. Now, that shipment had not been consigned to a New Jersey nurseryman from abroad.

The CHAIRMAN. Had it been inspected in New York?

Mr. SMITH. No. It was sent to New York; ordered by a New York nurseryman. The New York nurseryman informed the state

inspector that that whole mass of material was to be reshipped to other States. That shipment was not inspected. It was repacked in the same boxes—that is, in the foreign boxes—and in using the same material for packing what came into New Jersey carried 50 nests of the brown-tail moth. Of course we destroyed those nests and destroyed the packing and the cases and several trees. We are not on the lookout to destroy stock.

Mr. McLAUGHLIN. Do you know if the New York law in regard to inspection requires inspection of foreign goods received in New York but for shipment into other States?

Mr. SMITH. I believe, as a matter of fact, it does not; and there is one of the weaknesses of the laws as they exist at the present time.

Mr. ROUSE. May I interrupt a moment?

Mr. SMITH. Yes.

Mr. ROUSE. I want to make a statement that the New York law prohibits any nurseryman from opening any case of foreign stock for reshipment or any other purpose whatever unless it is done under the supervision of a state agent.

Mr. SMITH. When was that particular feature of the law passed?

Mr. ROUSE. Well, it has been in force, it started in and the law was passed, the same winter that the brown-tail moth was discovered.

Mr. SMITH. Yes. This was one of the cases that came before the amendment to the New York law. I am willing to bear out that statement, but it shows a weak point, and it is a point that is not covered in all the States at the present time. I want to pay a compliment to the State of New York on this particular point by saying that they have got the best law, so far as state law is concerned, of any State in the Union; and the enforcement is as thorough as it is anywhere, if not just a little more thorough. They have more money to spend and they spend it to good advantage. But here, for instance, is a condition we have in the State of New Jersey, the State that I administer, so far as the nursery part of it is concerned I would not like to have that statement made too broad. The state law as it stands at the present time gives me authority to issue certificates to nurserymen and to dealers—that is, to persons who deal in nursery stock without growing any of it themselves.

We have in the State a number of men who are agents for foreign nurseries. New Jersey has no port of entry at which nursery stock is introduced. New York is our port of entry; although the stock actually may be landed at Jersey City or Hoboken, it is still the port of New York. Now, the stock is addressed to a nurseryman whose post-office address is Hoboken. That goes to the port of New York and is cleared at the port of New York and is delivered in Hoboken, and the New York authorities never see it. It comes in under a certificate. The New Jersey nurseryman—or dealer, rather—gets the stock. He does not unpack it or repack it at all. I never get a chance to examine or to see it. It does not stay within my jurisdiction at all, but he reships it from Hoboken, and it gets all over the United States in such a way that it is never really inspected at all.

Mr. McLAUGHLIN. There would be nothing whatever to prevent the breaking of those packages and shipping them in other forms and other packages?

Mr. SMITH. If they broke them in the State of New Jersey, then they would be really acting in violation of our laws; but so long as

they do not open or break the packages in the State, I have no real reason for inspecting them.

Mr. McLAUGHLIN. They never actually were in the State of New York?

Mr. SMITH. Except as they entered at the port of New York they never were really in the State of New York.

Mr. McLAUGHLIN. And they were not received in New Jersey really from a foreign country, under the law?

Mr. SMITH. Not under the law as it stands at the present time.

Mr. McLAUGHLIN. In other words, they never reach New Jersey as foreign importations?

Mr. SMITH. From that point of view, they are not. The difficulty with these foreign importations—and that is covered by the law as it is drawn here now—is that many of the cases that come in here have arbitrary marks; and I think the nurserymen will bear me out on that matter, that a great deal of the stock that comes in here is shipped to the receiving agent or distributor, and is marked with an arbitrary mark or number which the dealer here understands thoroughly, and when he gets that mark he addresses each particular box to the person for whom it is intended. He knows what is in there, and he understands the mark. Now, that stock is reshipped from the port at which it was received, and it goes to other States of the Union. I have no authority to inquire what becomes of the stock that comes here in that way, and it gets into other States and the people in the other State never get any trace of that stock. It is opened and distributed in the other States, and nobody has ever examined it.

The CHAIRMAN. So that, if I understand you correctly, no matter how rigid the inspection law of New York or New Jersey may be, it is entirely possible for the stock to come from abroad, to enter the port of New York, or pass on into New Jersey, and then go out to Missouri, for instance, where there is no inspection law at all, without any other inspection. Is that right?

Mr. SMITH. Quite right, sir. That, I have no doubt, has happened in other cases. I do not know as to the State of Missouri particularly, but I know it has happened in regard to some other States in the Union.

The CHAIRMAN. I referred to the State of Missouri only because it is in evidence here that they have no inspection law——

Mr. RUCKER. Not exactly.

The CHAIRMAN (continuing). And therefore would afford a shining example to illustrate the point I was making. [Laughter.]

Mr. RUCKER. I think that statement has been qualified.

The CHAIRMAN. It was qualified by a statement of the witness that he was not sure about it.

Mr. RUCKER. I do not know about that.

Mr. SMITH. There are some other points that are of practical importance. We have gotten into the State stock of two distinct types. There is the really good stock that was paid for at good prices and was intended to be set out and sold at good prices, which is generally well packed; and there is no difficulty in examining that, and the stock generally comes in tolerably clean condition. It does not make any difference from what country it comes. Then we have another type that may be considered the unloading of stock, that is

a mixture of fruits and ornamental plants that comes in mixed lots, which has not been separated, which looks as if it had been rammed in with a hydraulic press, rammed in as hard as it can possibly be, thousands of plants in one case; and that is stock that is very largely intended to be sold or given away in department stores. Within recent years department stores have gone to a considerable expense in the nursery business. The business of Wanamaker, in Philadelphia, for instance, is enormous. The quantity they dispose of and give away every year is very large, and other department stores in other cities and in other States do very much the same thing. I know one New Jersey nursery got a lot of rose bushes in just that way, and those things never would have been inspected if I had not insisted on seeing them.

Mr. STARK. I would like to say that Missouri has ample inspection, and our inspection authorities there have been recognized, I think, by the Department of Agriculture here, and by the other States as well, so that we are well protected.

The CHAIRMAN. I am glad to have that statement go in the record.

Mr. RUCKER. When Kansas learns all about Missouri, it will be much better informed.

(At this point the chairman left the committee room, and the chair was assumed by Mr. McLaughlin.)

Mr. SMITH. This stock that comes in in that way is exceedingly difficult to handle. It has got to be completely unpacked and the packing separated out from the plants, and it is a terrific job to inspect a shipment of that kind. Some of those shipments contain hundreds of thousands of individual plants, so that the chances of overlooking specimens are exceedingly great. I shall not keep you gentlemen any longer regarding the details of that work, but I want to say, in regard to the methods that the nurserymen adopt in handling stock of that kind, that a great deal of that material which is packed in that way is reshipped without any examination on their part at all if they can possibly reship it in that way.

Another thing, in the unpacking of stock. Sometimes hundreds of cases come in in a single shipment, and the important feature is to get it out of the boxes and get it into the ground as soon as possible, and all idea of inspection of that stock on the part of the nurserymen at the time it is unpacked is absurd; they do not attempt to do it. They open the packages as quickly as possible, and the foreman is in charge and he indicates where it is to be wheeled in, and the cheapest kind of labor is intrusted with taking it out of the boxes and putting it into the ground; and there is nobody in those instances there that makes even a pretense of a close inspection of the material with the idea of seeing whether it contains any injurious insect or is affected by disease or not; and, more than that, most of the nurserymen use the boxes in which the stock came in for reshipments, and most of them, in the State of New Jersey at least, if they had the opportunity to do so, would use the material in which the stock was received—that is, the packing—for repacking other stock to be shipped elsewhere, and I do not blame them for it, because they are good boxes and it is good packing in most cases. They use that packing and they use the same boxes.

Mr. RUCKER. Does this last statement of yours apply to the nurserymen of New Jersey alone, or all over the United States?

Mr. SMITH. I speak for New Jersey.

Mr. RUCKER. For New Jersey alone?

Mr. SMITH. I have no practical experience in the other States, and I do not want to say one word that will reflect on the nurserymen in general. I am only giving the general practice so far as I have observed it.

Mr. RUCKER. You do not intend to reflect on any other States, but you only speak for New Jersey?

Mr. SMITH. Yes; that is right. The matter stands in just this way, and I want to say for the New York nurserymen that they are not less thrifty than the New Jersey nurserymen, because they have succeeded in getting a provision into the state law that if packing cases are destroyed the State shall pay for them; so that they are at least as thrifty as the nurserymen in New Jersey.

Mr. RUCKER. Did they not first get that principle from New Jersey?

Mr. SMITH. No, sir; it is not in the New Jersey law. One difficulty that I have to deal with, and it is my greatest difficulty, is that I can not get track of all the shipments that come into the State of New Jersey. The Department of Agriculture cooperates with my office and sends me notices of everything that comes to them, that is, to the Department of Agriculture. The State of New York, through its department of agriculture, cooperates and sends me notices of all the shipments that they have notice of, and I tried to make an arrangement with as many of the custom-house brokers in New York as I could get track of, to send me notices of shipments received that they have information of; but in spite of the notices I received from the Department of Agriculture, from the New York department of agriculture, and from the custom-house brokers, every once in awhile I run across a shipment of stock that nobody has given me notice of, and which has come into the State, absolutely sneaked through—not with any intention at all, please do not misunderstand me, but it has come in in such a way that I have gotten absolutely no notice of it—and that means a great deal, because in the State of New Jersey we have a considerable number of large estates. In the northern part of the State the rich men are buying up mountains and putting villas on top of them, and setting out fruit trees and ornamental stock, and they have gardeners that come from Holland and Scotland and England, and those men are used to ordering from their own countries, and they order from Scotland and England and Holland, and some of them from France and from Germany, and these shipments come in and I do not get track of them through the nurseries, and there is really nothing that gives me any clue to them unless I get it through the custom-house brokers. Now, lest it be considered a small matter, I will say that one estate alone, that of Mr. Duke, of the American Tobacco Company, imported 900 cases of nursery stock this year. That is a considerable quantity of material.

Mr. STANLEY. He violated the law when he did it, did he not?

Mr. SMITH. No.

Mr. STANLEY. He usually does. [Laughter.]

Mr. SMITH. I do not know about that.

Mr. RUCKER. That shipment was made to New Jersey?

Mr. SMITH. Yes. There are a number of instances of that kind that make it very difficult for me to get track of what comes into

the State. The State makes an inspection, and we inspect everything that we can get track of, and on that point I would say that in shipments that came from Japan this year we found a scale on evergreen stock that is closely allied to the San Jose scale and has very much the same habits. The Department of Agriculture says it is an entirely different species. What the result of that may be, I do not know. We know that it would be a good thing to keep out of this country generally. We found on a shipment from France not only the brown-tail moth—he goes without saying, almost, these days—but we found another species of moth in the pupal stage that is closely allied to the gypsy moth and which in Europe does more injury to their forests than the gypsy moth does here. Now, that insect we caught; we found it in the pupal stage and sent it to the Brunswick laboratory. It was a female, and it laid a batch of eggs. Fortunately they were not fertilized, so that there was no chance of getting the caterpillars. It only shows that the danger is not only a potential one, but it is an actual one, and we are getting in constantly insects that it is well to keep out.

Mr. McLAUGHLIN. That scale you speak of as coming from Japan, is that something well known there, and which has been injurious and damaging over there?

Mr. SMITH. That we have no authority to speak of. I have no record of it. That is a species that has not been described, so far as we know of. There is no public record concerning it. I do not believe anybody has had a chance to look up what the history of the insect is, but it is one of those things that has come into our hands, and the question is, what are its possibilities. It is undoubtedly better to keep it out than to let it in and run the risk of getting something on our nursery stock like the San Jose scale.

Mr. McLAUGHLIN. So far as you know, there is nothing suspicious about it?

Mr. SMITH. Nothing at the present time, except that it was abundant on the material; it was badly infested. It looks like a dangerous thing, but I do not know what it is.

In a general way, Mr. Chairman, that is what I have to say in this matter, except that I think two things will happen if the bill is passed at the present time. It meets my views perfectly, I want to say in that connection. The first thing is that the permit system will stop all importations by these small gardeners. It will be a benefit to the nurserymen directly, because these gardeners will be compelled to order from the nurserymen who will go to the trouble of getting a permit to import, and it will do away with lots of those individual importations that are so difficult to get track of. Sometimes there will be only a single case of roses in an importation.

Mr. STANLEY. What is to prevent the individuals from getting permits?

Mr. SMITH. Nothing, except that the individuals are seldom likely to go to the trouble of getting a permit. They can do it; but the man who only wants to order two or three dozen roses would rather go to the nurserymen than to write to the Department of Agriculture for a permit to import them. At the present time we do not know what is coming into the State until it does come, and sometimes we get two or three hundred cases coming on one steamer, and of course every nurseryman wants the examination of his stock made at the

same time. We do not have very much money in the State of New Jersey to spend for this purpose, but we do the best we can.

Mr. McLAUGHLIN. Just a question or two with regard to this section 8, which I understand is somewhat objectionable to some of the gentlemen interested in the bill. That is the section which provides for quarantine against foreign countries or districts. You have been abroad, and have seen their methods of conducting business. Are conditions so that different sections of the country might be quarantined against, easily, without interfering with or causing inconvenience as to other sections, or could you quarantine against one kind of plant or tree and not interfere seriously with the importations of other kinds?

Mr. SMITH. It is quite possible to quarantine against certain sections, and it is quite possible to quarantine against distinct kinds of trees, because in most of the nursery sections, so far as I have visited them, they run to certain lines of stock. Of course there are some that raise almost everything, but the sections generally run to one particular kind of stock, and it is quite possible to quarantine, for instance, against evergreen seedlings without affecting the deciduous seedlings in the least, and it will be quite possible to quarantine against deciduous seedlings without in the least affecting the coniferous seedlings. I think, so far as the quarantine is concerned, it need not work the least hardship, except, of course, in the case of an individual at the head of a department who was not amenable to reason.

Mr. RUCKER. In what way would it operate harshly, then, or adversely?

Mr. SMITH. You mean in case of an unreasonable man?

Mr. RUCKER. Yes.

Mr. SMITH. Oh, well, of course if a case of a disease on evergreen seedlings only was discovered, and the Secretary of Agriculture should extend his quarantine to all nursery stock in that district, that would be an unreasonable exercise of power.

Mr. RUCKER. That is what I supposed you meant.

Mr. HOWARD. I would like to state to Doctor Smith, and for the information of the committee, if you please, that in the case of the nursery stock imported at the port of New York, sent to Hoboken and thence distributed in the original packages, the Government has been able to trace some of that stock, through the courtesy of the railroads. Upon its getting in the hands of railroads, the railroads, before shipping it, apply to the Department of Agriculture and inform them of the ultimate point of destination, and in that way we have secured inspection by the state officials of a certain quantity of this stock. But we can not be sure that we get it all.

Mr. SMITH. Yes.

Mr. HOWARD. I would like to have Mr. Orton, of the Bureau of Plant Industry, speak on this from the standpoint of plant diseases.

STATEMENT OF MR. W. A. ORTON, OF THE BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

Mr. ORTON. I am a plant pathologist, and I would like to speak on the question of excluding injurious diseases not due to insects. We have at this time a great danger threatening us in the possibility of

importing a new disease of potatoes, which has lately become very threatening in England and in portions of the continent of Europe. This is the disease of which you have an illustration here, which practically entirely destroys the potato tuber [exhibiting illustrations]. It is a disease that is prevalent in the soil. It was discovered in Hungary about 1886, and has spread over portions of the country and into England, where it is causing alarm. It has already crossed the Atlantic, and occurs in Newfoundland. It serves as an example of the desirability of giving the Secretary of Agriculture authority to quarantine against a particular district. If this bill in question were passed, the Secretary of Agriculture would undoubtedly prohibit the importation of potatoes from Newfoundland; possibly not from any other country. But unless such authority were granted, we would be subject at any moment to the introduction of this disease, which has in it the possibility of causing losses of millions of dollars to the potato growers of this country, and for which there is no known remedy.

Mr. McLAUGHLIN. Has that been brought into this country to any extent?

Mr. ORTON. To the best of our knowledge it does not occur in this country at present, but importations of potatoes from the diseased area in Newfoundland have come to this country. We have not, however, yet found the disease here.

Mr. RUCKER. How would that affect the culture of potatoes in the United States?

Mr. ORTON. Wherever this gets a foothold it prevents the cultivation of potatoes. The entire crop becomes like this [indicating illustration], a mass of warty black excrescences, entirely useless.

Mr. McLAUGHLIN. Is there no law now authorizing the Secretary of Agriculture to take action against its importation?

Mr. ORTON. I understand there is not. If a shipload of these potatoes was brought to this country to-day, we have no authority to exclude them. Furthermore, the state authorities have no laws covering a case of this sort, for the reason that it is a new disease, and the laws of the several States as a rule apply only to troubles which have already shown themselves to be serious.

Mr. BEALL. What is the cause of that disease?

Mr. ORTON. This is caused by a fungus of a very low degree, a single-celled fungus, which attacks the potato at the eye. Here you have a cross section of one of those warty growths, and the black balls are the masses of the fungus which have produced the warty growths. I wish to point out that in the case of diseases, as opposed to insects, it is much more difficult to enforce an inspection for the reason that the presence of the disease is not always apparent on the imported stock. Some of these fungi may gain entrance to the plant before its maturity, and not develop to the visible point until after the stock is widely distributed in this country. I would like to have Doctor Metcalf, my colleague, of the bureau, speak to you on the question of the white-pine disease, which is an even more serious trouble than this.

Mr. McLAUGHLIN. In the countries where this trouble has been they have found no way of treating it or checking it?

Mr. ORTON. So far, only to prohibit the growing of potatoes on infected land.

Mr. McLAUGHLIN. It is something in the land that attacks the potato when it is put in?

Mr. ORTON. It is a parasite in the soil, and is carried from field to field on diseased potatoes. The board of agriculture of England has made this disease a notifiable disease. They require farmers discovering it to notify the board, and then penalties are imposed in case any of those potatoes are allowed to be distributed in the market.

Mr. McLAUGHLIN. Do you know to what extent that disease has reduced the growth or the yield of potatoes in any of those countries?

Mr. ORTON. I could not give you figures regarding the potato crop of England. It has not yet become widespread in England. It has become very serious in the restricted localities where it occurs, but it has hardly become a factor which reduces the potato crop of England by thousands of bushels; for instance, we have cases on record where fields of 60 or 80 acres have been entirely ruined by this disease, but I do not think it is yet universal in any of the European countries. It is, of course, very serious in Newfoundland.

Mr. McLAUGHLIN. On ground where this is the result of potato culture, does that disease attack any other fruit or crop?

Mr. ORTON. So far as we know, it does not. As a general rule, these plant parasites are restricted to single crops. There are exceptions to that, but most of the plant diseases are specific in their nature. We meet with great difficulty in detecting some of these plant diseases in the imported stock. It would be a far greater protection to the farmers of this country if it were made possible to exclude importations from districts known to be infected.

Mr. ROUSE. Exportations of what, potatoes?

Mr. ORTON. Of potatoes or of other plants in case there was danger of carrying infection.

Mr. HAUGEN. We have parasites destroying large fields of oats also, have we not?

Mr. ORTON. Yes, of course, we have hundreds of plant diseases in this country.

Mr. HAUGEN. Were these imported?

Mr. ORTON. Some of them were native to this country and some were imported.

Mr. HAUGEN. Would this give the Secretary of Agriculture power to quarantine against importations of wheat?

Mr. ORTON. Probably that would not be done. In a case where the disease is already widespread in this country, it would not seem rational to quarantine against further introductions, which would have very little effect on the presence of the disease.

Mr. HAUGEN. The wheat crop is of greater importance than the potato crop, is it not?

Mr. ORTON. Yes; but so far as I know we are not now in danger of introducing any disease of wheat. Such a danger might arise at any moment, and should it arise we would have no recourse, no manner of protecting ourselves.

Mr. HAUGEN. There is no danger of carrying this quarantine too far, is there?

Mr. ORTON. I think not. I think the interests of our farmers are so infinitely greater than the interests of the small number of importers who might be affected by legislation concerning this or other diseases, that there is no such danger. I do not think that any quarantine

against this disease would be directed toward countries where it does not occur, and the larger portion of our importations of potatoes is from countries where this disease is not established, but from the few places where this disease does occur there is the greatest need of protection.

STATEMENT OF MR. HAVEN METCALF, LABORATORY OF PLANT PATHOLOGY, BUREAU OF PLANT INDUSTRY, DEPARTMENT OF AGRICULTURE.

MR. METCALF. I am a pathologist of the Bureau of Plant Industry. The disease I have to speak about, Mr. Chairman, is a disease that affects the white pine and lives a portion of its life on the currant and gooseberry. On the currant and gooseberry it is an unimportant disease and does not need to be considered. On the white pine it has caused in Europe a great amount of danger, particularly on nursery stock. It also grows on adult pine trees, but disfigures them without killing them. I have here a chart showing the appearance of the disease when it is in its visible condition [exhibiting chart]. This is a chart which is issued by the imperial health office of Germany, which in that country has direction of the diseases of plants as well as of animals and of human diseases. This disease has already been imported into New York, New Jersey, Vermont, Connecticut, New Hampshire, Massachusetts, Pennsylvania, Minnesota, and the Province of Ontario, but we have every reason to believe that at the present time it is under control in all those places. So far as we know it is. Inspection, unfortunately, does not enable us to exclude this disease at certain times, for the reason that the disease incubates in the plant for two or more years before becoming visible at all, and after the plant is thoroughly diseased with it, before it dies, it is reasonably visible for only about a month out of the year. The only way in which this can be kept out of the country further is by definitely prohibiting the entry of white-pine nursery stock, not related to nursery stock, but simply to white pine from those particular regions where we know the disease occurs and has occurred. For instance, we know that in the Holsteinbeck in Germany that disease has been prevalent every year since 1903, and if there were any adequate system of protection in Germany for us that should have been detected in a year by the most superficial sort of examination there. This disease, I may say, not only threatens the white pine, but threatens also the five-leaved pines, which include the sugar pine and the pine of the Rocky Mountain region.

MR. HAUGEN. How is this disease controlled at the present time, if it is controlled at all?

MR. METCALF. The latest instance of control was the destruction of 25,000 trees found diseased in the State of New York. It is controlled simply by the destruction of the trees that are found diseased. Aside from that, we have no means of controlling it.

MR. HAUGEN. Is it a disease that attacks the forests, or only ornamental trees?

MR. METCALF. The white pine is an introduced tree in Europe, and has not been planted there in forests to any great extent. It occurs mostly on nursery stock and on ornamental trees.

MR. HAUGEN. How is it in this country?

Mr. METCALF. In this country it has thus far only gotten onto nursery stock, small stuff, under 6 years of age.

Mr. HAUGEN. Does it spread rapidly?

Mr. METCALF. It spreads rapidly in Europe. It remains to be seen what it will do in this country.

Mr. HAUGEN. How do you control it?

Mr. METCALF. Simply destroy the trees that have the disease on them. That is the only way.

Mr. BEALL. How was it brought into this country, on nursery stock?

Mr. METCALF. On nursery stock, and almost wholly from one nursery in one district.

Mr. BEALL. From Germany?

Mr. METCALF. Yes.

Mr. BEALL. Can the presence of that on nursery stock imported be detected by inspection?

Mr. METCALF. Usually it can not. If we had had an inspection law, probably 50 per cent of what of this disease has entered this country would have been prevented by inspection. The rest of it could not, because at the time the disease was not visible, but has developed and become visible since.

Mr. BEALL. Is there any means by which this country can be protected against the importation of that disease?

Mr. METCALF. It can be by the provisions of this bill which is under consideration, which will allow permits to be refused calling for importations from districts where we know the disease occurs.

Mr. McLAUGHLIN. You could not reach that difficulty by inspection?

Mr. METCALF. In no possible way.

Mr. McLAUGHLIN. You would have to prohibit the introduction of it altogether?

Mr. METCALF. Either altogether or from the districts where we know definitely that it occurs.

Mr. McLAUGHLIN. What progress are they making in combating it where it has been discovered in the old countries?

Mr. METCALF. It is rather difficult to answer that question. I think that in general they are making rather good progress, they are eradicating it rather carefully; but from our knowledge of this one nursery—it has been infected since 1903, which would indicate that they are not—

Mr. HAUGEN. Is it a new disease?

Mr. METCALF. No; it has been known for fifty years, and has become serious over there within thirty years.

Mr. HAUGEN. It is now in this country, is it?

Mr. METCALF. It is now in this country, within the last four years.

Mr. STANLEY. Are there any forests infected with it now?

Mr. METCALF. No forests; simply nursery stock.

Mr. STANLEY. It is simply confined to nursery stock?

Mr. METCALF. Yes.

Mr. STANLEY. On growing trees in this country?

Mr. METCALF. In this country it is only on nursery stock.

Mr. PITKIN. May I ask by whom the 25,000 pine seedlings you mentioned in New York State were imported?

Mr. METCALF. I do not know by whom they were imported. I simply have that information. Mr. Atwood of New York sent me a telegram.

Mr. PITKIN. Is it not true that they were imported by the state forestry board for forestry purposes, and not by nurserymen?

Mr. METCALF. I simply have this information.

Mr. PITKIN. I do not think the nurserymen imported any such thing. I think everything that has come into New York State has been imported by the forestry board, so far as my information goes.

Mr. METCALF. The greatest quantity has been.

Mr. PITKIN. How does that affect white pine?

Mr. METCALF. That affects all of the 5-leaved pines. That includes the western white pine and the sugar pine as well, and the pine of Europe.

Mr. STANLEY. What is this disease called?

Mr. METCALF. The blister rust.

Mr. STANLEY. What is it transmitted by, an insect?

Mr. METCALF. It is probably transmitted mostly by wind.

Mr. STANLEY. It is a fungus?

Mr. METCALF. It is a fungus.

Mr. McLAUGHLIN. Has any part of our importation of the white pine nursery stock come from this infected district?

Mr. METCALF. So far as we have traced up imported stock, 90 per cent of it has come from this district.

Mr. McLAUGHLIN. And in future, if this importation from this section should be forbidden, it would be necessary to get our stock from other sections from which we have not been receiving very large quantities?

Mr. METCALF. Yes.

Mr. McLAUGHLIN. Do you think that would impose any considerable hardship on us?

Mr. METCALF. I do not see that it would impose any hardship on us at all. In fact, that would undoubtedly encourage the growing of pine stock here. In the long run, it would decidedly benefit the ornamental nursery interests.

Mr. McLAUGHLIN. Do you think these importation duties are necessary?

Mr. METCALF. They can grow white pine stock in Europe cheaper than here, so that they undersell the people of this country who grow their stock. It is more profitable.

Mr. McLAUGHLIN. Is it entirely a question of money, then?

Mr. METCALF. Yes; it is entirely a question of money.

Mr. HAUGEN. How do you know that this disease is in evidence in the States referred to?

Mr. METCALF. We have seen it there.

Mr. HAUGEN. Have you inspected it?

Mr. METCALF. Yes; we have either inspected them ourselves or have seen diseased specimens from those States, sent in by the State inspectors.

Mr. HAUGEN. Was any of that destroyed—of the stock imported?

Mr. METCALF. All that has been found diseased has been destroyed, so far as we know. There has been a very unanimous effort to destroy it.

Mr. STANLEY. Is this infected region the only region from which you can import white pine from abroad?

Mr. METCALF. No; there are other places; but we are not fully informed as to what those places are. A week ago I should have said that stock could be safely imported from Orleans, France, but within a week diseased stock has come from that point.

Mr. McLAUGHLIN. Is there anything further from this witness? If not, Professor Symons, state entomologist of Maryland, is present, and we would like to hear from him.

STATEMENT OF MR. T. D. SYMONS, STATE ENTOMOLOGIST OF THE STATE OF MARYLAND.

Mr. SYMONS. Mr. Chairman and gentlemen of the committee, I will simply reiterate some of the statements that have been made by previous speakers, emphasizing the importance of the law that is before you. I am speaking representing the interests of Maryland. Last year there were imported into Maryland 1,500,000 trees, plants and seedlings together, the majority being seedlings. Out of that quantity we found over 500 nests of the brown-tail moth. This year there have been imported 2,500,000 trees planted from seedlings, and we have found 750 nests of the brown-tail moth.

Mr. McLAUGHLIN. You mean so far in 1910?

Mr. SYMONS. So far in 1910 we have found 750 nests of the brown-tail moth. These have been found at different places in the State, resulting where the stock has been imported. Now, it is readily discerned from what has been said that either year, if these nests had been allowed to escape, or even if one nest in a single place had escaped, it would have necessitated the expenditure of considerable money on the part of the State to have exterminated the pest, even if it could have been successfully exterminated. We are not, under the present conditions, fully protected from imported insects, because, as Doctor Smith has pointed out, we are not acquainted with all the shipments that are made.

Mr. McLAUGHLIN. Have these two pests which you have spoken of appeared in any part of your State, as indicating that any have got away from you?

Mr. SYMONS. No, sir; up to date, so far as we know, we have been fortunate in catching all of them. Of course, that is a fact that we can not say for certain, because it is very probable, if it should have gotten out at any particular isolated importation, that the owner or the individual would not have recognized the insect until it had done considerable injury, enough to warn him so that he would call on the state office. So far as we know, we have been able to capture all of the nests. We have not received any complaints. But, aside from the notifications that my office receives from the Bureau of Entomology of the Department of Agriculture and from the collectors of ports, we have several instances where importations have been received of which we had no previous notice, and you can readily understand that with the nests being imported steadily, notwithstanding the supposed effective inspection in Europe, as pointed out by Dr. Howard, we have secured even more nests this year than last year.

Mr. McLAUGHLIN. Did these shipments come from places where there was inspection in foreign countries of goods coming here?

Mr. SYMONS. Yes, sir; these shipments came from France, where they are supposed to have an inspection service this coming season, but it shows that the inspection service was entirely inadequate, and not secure by any means.

We ask that your committee favorably consider this bill from a national standpoint; for I take issue with the gentleman from Missouri in regard to the several States recognizing the importance of taking up any such broad question as this. It is true that the National Government or the Bureau of Entomology, recognizing the importance of checking this pest, especially from the experience in Massachusetts and adjoining States, would apply vigorous measures in an effort to prevent its introduction, whereby the importance would be impressed upon the legislature of Maryland of keeping this insect out. I speak very feelingly on this subject, because I have recently gone through the experience of trying to get an additional appropriation to aid in the prevention of the shipment and introduction of this stock; and yet we have failed to impress our legislature with the pressing need, and at this time there is only \$4,000 appropriated by the State of Maryland for the control of insects, and of course the inspection of this imported stock has to be done with that amount of money, not considering the other work with which the bureau was originally charged. It simply shows that the States do not recognize the importance of this, and so far as Missouri is concerned, I point this out, Mr. Chairman. It was brought out in the testimony this morning that inspection in some States is not as efficient as that in others. Last year we had a shipment of seedlings from Missouri into an isolated nursery of western Maryland on which were found nests of the brown-tail moth. That stock was opened by that most careful nurseryman in Missouri and was reshipped to a nurseryman in our State who would not have identified the pest. So far as anyone seeing the nest or the disease is concerned, it is very easy to see things when you know them, but everybody does not know them.

Mr. RUCKER. I was going to suggest that the gentleman talked with a good deal of feeling, and I wanted to suggest that I may develop some feeling myself if he keeps on talking about Missouri in this tone.

Mr. SYMONS. Yes; I simply wanted to speak of this as an instance; as an illustration.

Mr. RUCKER. The whole State of Maryland can not hurt Missouri. Go ahead. But since we have now gotten in a perfectly good humor, let me ask you, Why do you not go to your state legislature and ask for an appropriation, instead of coming here?

Mr. SYMONS. For the reason, sir, that there is no other means at the present time to prevent the introduction of this, to aid in suppressing it.

Mr. RUCKER. Did you consider it to be part of the duty of the State to administer the law so as to protect the people against these insects that Missouri shipped to you?

Mr. SYMONS. Yes, sir; we considered it to be a part of the duty of the State, so far as possible.

Mr. RUCKER. And one reason you gentlemen come to the National Government is because you can not get as much money out of the state governments as you want?

Mr. SYMONS. No, sir; I would not put it that way.

Mr. RUCKER. Is it not a fact?

Mr. SYMONS. Because we had no jurisdiction over any such shipment.

Mr. RUCKER. You are speaking of Maryland?

Mr. SYMONS. Yes.

Mr. RUCKER. You want to protect Maryland against Missouri?

Mr. SYMONS. Yes, sir.

Mr. RUCKER. And you get all the money you can from your State, and because they do not give as much as you gentlemen think you ought to have, you come down here—I do not say that in any improper sense, and I have no feeling or emotion in the matter at all.

Mr. SYMONS. Yes, sir. I would simply answer that by stating—

Mr. STANLEY. As I understand, the appropriation in the State of Maryland is only for the purpose of remedying this evil after it gets into the State?

Mr. RUCKER. Certainly.

Mr. STANLEY. The National Government could keep you from being subject to the pest?

Mr. SYMONS. Yes.

Mr. RUCKER. The point I wanted to develop was this. Would it not be perfectly safe if the States will make the appropriations you and the distinguished gentlemen who are doing the work, and have been successful in catching 750 brown-tail moths in one season, want; is it not true that with a few thousand dollars more you will exterminate the whole family?

Mr. SYMONS. That is true, sir. I appreciate the compliment, so far as the work in Maryland is concerned, but it may happen that the States adjoining may not have such a competent inspector. [Laughter.]

Mr. RUCKER. They may not have so much money in those States. Would you mind stating what part of the State of Missouri that shipment of moths came from?

Mr. SYMONS. It came from the southeastern part of the State.

Mr. RUCKER. Those animals came from there? We got them from you and sent them back?

Mr. SYMONS. All of the States have imported seedlings and have found imported nests.

Mr. RUCKER. How many nests were there in that shipment?

Mr. SYMONS. I think about a dozen or 15 nests; a very small shipment. In a nest there are from 500 to 600 larvæ. Is that right?

Doctor HOWARD. From 250 up.

Mr. RUCKER. When was that shipment received?

Mr. SYMONS. About this time last year.

Mr. McLAUGHLIN. Was that a shipment that had come from a foreign country into Missouri and was reshipped into your State?

Mr. SYMONS. Reshipped to my State.

Mr. McLAUGHLIN. Had it been opened and repacked?

Mr. SYMONS. Opened and repacked. Now, I do not say this as disparaging Mr. Stark's nurseries or any other nurseries. It would have been the same with myself or any other official who had not probably been aware of the seriousness of this pest.

Mr. McLAUGHLIN. Will you state whether it came in the original package or had been repacked with new material, or the old material, or what was the situation?

Mr. SYMONS. It was apparently repacked. I would not answer that question positively—that is, I am not so sure; you can not tell. The shipments are usually sent in cases of 15,000. Now when this was broken up, and as I recall, reshipped in a smaller package, of course it is probable he used the material for repacking; but aside from that it is simply a point of view, and I am simply saying that it is possible for any of us in any State to pass by dangerous pests when we have not had them brought strictly to our attention, and that is one reason that I think justifies the importance of having one or two or half a dozen men if necessary on the part of the Government to investigate the possibility of infection. I have no doubt that even the brown-tail moth would not have been found so promptly in New York State if it had never before been in this country. The detection on the part of the New York inspectors of the brown-tail moth nests, was due to the fact that they had possibly been aware of them and had heard of the injury they caused and were familiar with the nests, and so forth, by virtue of the experience in New England in the past twenty years. Now it is probable that new pests may be imported that none of us in this country are familiar with, and in that case we would not be so apt to detect it nearly so easily as something that we have heard tell of. But a specialist—that is, a special bureau of the Government—would seek in Europe to find any possibility of infection on such stock and would then bring it to the attention of all the state entomologists.

Mr. RUCKER. Any new insect that is liable to prove a pest or to ravage the trees is likely to escape notice until it is, somewhere and sometime, discovered and attention directed to it, is it not? Viewing the situation and the condition as you do, and having had large experience of it in the State of Maryland, what is your opinion; can the whole subject be dealt with under state legislation and state administration efficiently or not?

Mr. SYMONS. I am glad you put that question, because there really have been insinuations in a way in this testimony that would lead you gentlemen to believe that we entomologists had some grudge against the nurserymen or against their business, and I simply would state that all of us have just as much at heart their business and the nursery business as a whole as we have the growers' business at heart. Occupying the position I do, as entomologist, toward the nurserymen and growers, I must consider the business of each, and it is from due consideration that I have given this subject from our experience in Maryland that I believe from the standpoint of the United States it should have a reasonable law to prevent the possibilities of introduction of these injurious pests.

Mr. RUCKER. The possibilities? That means to prevent absolutely the importation of those diseases or those insects?

Mr. SYMONS. That is to say, yes, sir, the possibilities of shipment. I will change that word and say the possibilities of shipment of any injurious pests. That is prevented in accordance with this law.

Mr. RUCKER. To prevent the possibility means practically to make it impossible. That does not make it impossible that it should be established here?

Mr. SYMONS. Yes, sir. That I consider the duty of the Government, so far as possible, to do that.

Mr. RUCKER. So far as possible, yes.

Mr. SYMONS. But at the present time we are doing nothing about it.

Mr. RUCKER. The question directly I asked you was this: With wise and proper further state legislation, administered by honest, faithful public officers like yourself—I am not trying to flatter you, because I am very much pleased with you——

Mr. SYMONS. Yes, sir.

Mr. RUCKER. Do you not believe under state management and state administration this whole trouble can be controlled?

Mr. SYMONS. Well, I will have to differ with you, Judge.

Mr. RUCKER. I am merely asking your opinion about it.

Mr. SYMONS. I will have to differ with you, because it is absolutely impossible for single States to effectively control it, and I will cite as an instance what I see going on here in the District of Columbia and Maryland. I see men bringing bundles of roses out to College Park. I have no jurisdiction over those roses; they are sold to Tom, Dick, and Harry in the District of Columbia. The District has no inspection law, and as a result people buy those roses and bring them in.

Mr. RUCKER. My inquiry, of course, would include the District of Columbia as one of the communities of the United States.

Mr. SYMONS. Yes. If you would append to your question "by having an efficient inspection service in every State, perfectly adequate to handle all of the stock, with notifications to all other States, and cover every importation into the State," I agree with you.

Mr. RUCKER. Now, I am quite sure that if they would do all that, you and I would agree, and I think the reason we would agree, Doctor, is because there would be nothing left for us to disagree about.

Mr. SYMONS. Well, sir; I think that is the only way it can be entirely satisfactory.

Mr. RUCKER. If this law is absolutely adequate, and it is administered with absolute precision, and with gentlemen like yourself having the administration in charge, who never make a mistake, there never would be another brown-tail moth in this country?

Mr. SYMONS. No, sir; I would not say that.

Mr. RUCKER. But you are answering something that I did not ask you. I asked you, with wise laws——

Mr. SYMONS. And reasonable care.

Mr. RUCKER (continuing). Not gotten up in the Agricultural Department, but such laws as the legislators in your State might pass, or like the people in my State might pass—and we have gentlemen in my State competent to write laws—and administered by faithful public officers, do you not believe that it can be regulated and controlled efficiently and well by the States, and not require the Federal Government to take charge of it?

Mr. PLUMLEY. Right in that connection, before you answer that, and as a part of it, what authority would the States have, as you understand it, to quarantine against any shipments from Europe?

Mr. RUCKER. None whatever. I grant it.

Mr. PLUMLEY. Then, could you by such state laws prevent the incoming from abroad of these shipments? Could you cut off a section and say that from that section there should be no importations while that disease remained in that particular place or in that particular plant?

Mr. SYMONS. No, sir.

Mr. RUCKER. I did not know that you were going to take the witness in partnership with you.

Mr. PLUMLEY. I am always willing to go in partnership with you.

Mr. RUCKER. I take it that the State would have authority to put a shipment under police control immediately upon its crossing the state line. I will agree that this gentleman, with all of his animus against the brown-tail moth, will not let any of them into the State of Maryland if he has the opportunity to examine that box before it crosses the state line, I do not care whether it is from France or where it is from; he will catch them.

Mr. STANLEY. Here is what bothers me. Under the Constitution neither the State of Maryland nor any other State has the right to interfere with a shipment entering the State, passing between the nurseryman in France and the planter, wherever he might be—on the top of some mountain in New Jersey or over in Maryland.

Mr. RUCKER. I expect you are right about that, but we are doing so many things now by proxy that the Government might permit it and turn over to the States the authority to do that rather than to have it all concentrated in Washington. That is my idea.

Mr. STANLEY. But you would not be in favor of having them abrogate the Constitution by proxy?

Mr. RUCKER. I do not think that would abrogate the Constitution by proxy. I will not go into that discussion here.

Mr. BEALL. Do you think that the States will be relieved of any of the responsibility or any of the rights they now have?

Mr. SYMONS. No, sir.

Mr. BEALL. So far as the inspection of this kind of shipments is concerned, or other efforts toward the extermination of these pests?

Mr. SYMONS. No, sir. I anticipate that the inspection will be under the supervision of, and possibly done by, the same men.

Mr. BEALL. It will be by cooperation between the State and the Federal Government?

Mr. SYMONS. It will be by cooperation between the State and the Federal Government; yes, sir.

Mr. STANLEY. Now, let me get your idea about this. Suppose the United States Government does assume this responsibility to the extent of this bill. In your judgment, is there any danger of the States attempting to shove off upon the Federal Government the entire responsibility for these inspections? We have had some unfortunate experiences along that line, which go to show that if once the Federal Government assumes jurisdiction over a matter of this kind there is a general disposition upon the part of all the States—Maryland, I suppose, included, because it is difficult there to get an appropriation and probably would be more difficult after the Federal Government begins to make an appropriation—to throw off upon the Federal Government the entire responsibility and relieve themselves. Do you think that would follow in this sort of a case?

Mr. SYMONS. Well, sir, I will simply state that I do not think it would be true. But as a whole, the General Government, of course, would have the general responsibility. In other words, I have no right at the present time to even have the collector of the port notify me of every shipment, and hold up every shipment that comes in. The collector of the port has no law, and there is no reason for him to notify me. If there was such a law, then the government officials would be required, and of course by their laws it would aid us, in cooperation with the States, in preventing the establishment of these pests.

Mr. BEALL. I appreciate the advantages of cooperation between the Federal Government and the States, and I realize the handicap under which the States labor, with their different laws and different systems of inspection. Now, do you believe if a measure like this was passed you would possibly, at the next session of the Maryland legislature get even \$4,000 appropriation for this purpose? That is the danger I see in it.

Mr. SYMONS. I think we would be able to get the \$4,000, because we have been getting it since 1898, for the work in the State. But what I wanted to point out was that I could not impress upon the legislators, who have seen no injury from this pest, the importance of keeping it out, and we are trying to point out to you honorable gentlemen the importance of preventing any possibility in the future of introducing these pests.

Mr. BEALL. Do you think if we passed this legislation there would not be danger in the State of Maryland, just as there would be danger in the other States, that they would say, "Well, the Federal Government has assumed charge of this matter, and Congress is making an appropriation, and there is no necessity for Maryland making any appropriation?" Do you believe the situation would be any better with the 46 States all looking to Congress for an appropriation and all looking to the Federal Government for protection against these pests than it is now when some part of the responsibility rests on them?

Mr. SYMONS. I take it that some responsibility would continue upon the state entomologists for the work that they have been appointed for, and that the Bureau of Entomology would require, and in fact I think it would be a stimulus to the States to appropriate money for the work just as much as it has been a stimulus to the States to appropriate money for the experiment stations which the Government is appropriating for, and in the same light that it would give a stimulus to appoint an efficient man and appropriate sufficient money to pay him. That is the great trouble now in some of the States now having an inspection service, and I do not think this danger you point out would materialize in the future.

Mr. BEALL. I hope not.

Mr. SYMONS. I think that the money would continue to be appropriated and that the responsibility of the entomologists of the various States would be equally strong to keep the pests out and cooperate with the Bureau of Entomology; but the Government would then have a control of the whole situation as affecting the country, which is not the case at the present time, and it is unfair to Maryland or Virginia or Missouri, if the adjoining State should not have an efficient inspection service, to allow such a pest to be introduced there and to spread to adjoining States. Now, we would have no control over that; but if the Government had a law, there would be an effective control over the several States, which I think is needed.

In conclusion, gentlemen, I simply wanted to point out that in our State, for instance, it has been due to the cooperation of the nurserymen that we have been able to inspect the stock so efficiently and keep out the pests as we have done to-day. The nurserymen, I grant you, appreciate these conditions, but, as I take it, they object to this point of the quarantining of any districts in Europe, which is a point for you gentlemen to decide. Personally, I can not see that it would

be injurious to their interests. It seems to me if the nursery interests would appear before the Secretary of Agriculture at any time in this country of ours, certainly they would have redress so far as unreasonable regulations were concerned, and if the regulations were not unreasonable, then the nurserymen would not want that stock to come in. And so far as inspection of the stock at the present time is concerned, we have in Baltimore a large firm of auctioneers who have sold stock, and two weeks ago I inspected 20,000 roses and evergreens sent over to that company to be auctioned off at such prices as they could get for them, showing that the people of Europe have sent their stock over here to be sold on the retail market for the prices that the auctioneers could sell them for in competition with our own ornamental nurserymen. The nurseryman has not made a kick on that, but there is an auctioneer's concern that imported the stuff in Baltimore city and disposed of the stuff all over the State, and it has been done for years past, and of that our office has had no knowledge.

Now, it is only a miracle that the brown-tail moth has not been distributed. It is only from the fact that, as I understand, in Europe it was not present on the seedlings or other nursery stock that was imported, and it is only in the last two years that it seemed to have been attacking nursery stock, and we have gone after it. Aside from that, there are numerous personal shipments of which we have no knowledge. So far as the individual nurserymen are concerned, they have cooperated with us to the greatest extent in the inspection for these pests, and I feel sure that the operation of this law would in no way affect their business.

Mr. HOWARD. You discovered 1,300 nests of the brown-tail moth in the last two winters?

Mr. SYMONS. Yes.

Mr. HOWARD. You are not sure that this pest is not already established in your State?

Mr. SYMONS. No, sir; I am not. I say that, of course, advisedly. I do not think any State is sure that it is not present in the State.

Mr. HOWARD. Are you aware that the brown-tail moth existed in the State of Massachusetts for five years before it was discovered?

Mr. SYMONS. No, sir; I was not aware of that.

Mr. HOWARD. And that the gypsy moth was established in Massachusetts twenty years before it was discovered?

Mr. SYMONS. No, sir.

Mr. RUCKER. It has occurred to me that this is true. I do not know whether it is or not. In Massachusetts it was unknown, and therefore its presence might have been even observed by gentlemen without attracting any attention, while to-day it is known, and its presence would be readily observed by those who know enough to detect it, and I rather think that the gentleman's conclusion is probably right, because he has had his attention fixed to these matters and has not discovered it. I can understand how it might have existed there without being discovered. I simply mention that.

Mr. SYMONS. In relation to inspection by state officials, if there is a government bureau, it can then look into the matter in the different States and protect the different States from possible injury.

Mr. RUCKER. As a matter of fact, there is hearty cooperation between the States and the federal bureau now?

Mr. SYMONS. There is hearty cooperation; but it is nobody's business at the present time to look into the possibility of introducing serious pests and acquainting the different States with them. In other words, my time is absolutely taken up with numerous duties in connection with teaching and the inspection of nurseries in our State. I have not the time to look into the possibilities of introducing pests from Europe, and I take it that it is the duty of the Government, through this law—it would be the duty of the Government through this law—to have two or three men looking into the possibilities of introduction, and placing us wise, so to speak, because that is very necessary, inasmuch as there are several States that do not have an effective inspection service, and I have had considerable difficulty this past year, even after being as careful as we have been in Maryland, in preventing the establishment and the escape of the pest.

STATEMENT OF MR. J. L. PHILLIPS, STATE ENTOMOLOGIST OF THE STATE OF VIRGINIA.

Mr. PHILLIPS. Mr. Chairman, I might say that Doctor Howard and Professor Symons and Doctor Smith have covered these points so well that it does not seem necessary to take up much of your time. I shall speak very briefly. I want to call attention first to a case that arose, which meets, I think, some of the points discussed, but would just simply be adding information. We have had notices from the inspector in New York State and from the department here in Washington as to some shipments coming into our State, but not as to all of them. In one case where an inland importing company got in stock, no doubt the inspector in that State was notified when the shipment was made, but whether it was inspected there or not—in fact, it seems to have come in the original case from there to our State, and we found in that case several nests of the brown-tail moth. Now, when this other State was notified of the shipment it was lost track of, if that State did not inspect it. In the case Doctor Smith mentioned the state authorities simply said: "That goes to another State, and we will not trouble with it." That shipment would be lost track of, and it would come to Virginia without any notice whatever, and we would be powerless to meet those conditions unless the national department would check up those things and absolutely see that reports are made on every one of those cases, as to the inspection, before they lose track of it. In that case, this case should have been tracked right to its destination, and the official in the State where it finally went notified of it, or it should have been inspected in the State where it originally reached its destination.

Mr. STANLEY. Let me ask you a question right there. Mr. Beall has mentioned something which too often occurs in this country, and that is that the state governments immediately abdicate all their authority and cut off all their appropriation whenever the National Government takes a matter in hand. Do you believe if the Federal Government should make it imperative upon the inspectors at ports of entry to notify the various state entomologists in advance of consignments of nursery stock, that the States would supplement that information by preventing the opening of that nursery stock by the consignee—which it would have a perfect right to do—until it could

could be examined by the state entomologist? In that way the Federal Government would give you the information without being put to any great expense, and you could act on it as you saw fit, and as you were authorized to do and enabled to do by the appropriation of the state legislature.

Mr. PHILLIPS. I should think the States would meet that. Anyway, that has been mentioned several times. I would like to say this, without intending, of course, to reflect on anyone in that connection, that the National Government should not, I should think, omit its duty because of the fact that maybe one of the States would try to overstep its bounds and trespass on its neighbors.

Mr. STANLEY. In that respect the National Government would be doing its duty. It could notify you of the danger and you could do as you pleased. If the State knew that these things were going to be imported into it, and knew that they were liable to the danger, and then the State was supine, it would be the State that neglected its duty.

Mr. PHILLIPS. I lost your point, possibly. I was thinking that you were bringing out the point that had already been made.

Mr. STANLEY. You admit that you have the power to inspect this stock, if you know where it is?

Mr. PHILLIPS. If we know, we can inspect it.

Mr. STANLEY. Under the laws of the State of Virginia, and I assume under the laws of all these States, you have a perfect right to go and inspect a consignment in the hands of an individual or in the hands of a nursery? Your right to inspect it is predicated upon the fact that it may endanger the trees of other people. You have the same right to inspect one tree imported as you have a right to inspect a thousand trees imported, but you do not know, where they are brought in by individual importers in small consignments. Now, if this Government would impose the duty upon the inspectors at ports of entry to notify you—the state entomologist—in writing of the consignment, of the importation, of the nursery stock, and of the name of consignee and his post-office address, would you be able then by supplemental state legislation to reach that stock before it was planted?

Mr. PHILLIPS. I should say that in 75 per cent of the cases that would be true; but there is one point there in your question which I caught—that is, could the National Government lie down after it had notified the entomologist of the other State of what was coming? I do not think it could.

Mr. STANLEY. One moment. That is all that the Government can do with the original package, if it is not opened at the port of entry. Of course, the Government itself would have the right to open it at the port of entry and confiscate it; but, as I understand, this committee has found that it is impossible for the National Government to open these closely packed cases and look at each individual tree. Who is the proponent of this bill?

Mr. HOWARD. Mr. Marlatt.

Mr. STANLEY. Mr. Marlatt, as I understand, this first bill we had before the committee made some provision for ripping open these packages and looking at each tree, which was found to be impracticable. This bill, as I understand it, as I have read it very casually, provides that the federal officers shall examine this nursery stock at

the point of its destination, and in that way you would be doing the same work identically with the authorities acting under the state act. Now, if the Federal Government should employ enough inspectors and remunerate them sufficiently to enable them to notify these various state entomologists of all the shipments that A, B, or C has this day entered at New York or received at New York; so many rose bushes, or so many white-pine seedlings, or so many seedlings of any kind—the mails go faster than the freight—and could not they very readily notify the state entomologist of the character of the consignment and of the name of the consignee in time for the State to send inspectors there when this package was opened, and would it not be easy enough for the State to forbid the opening of any such imported stock until after it had been inspected by some officer acting under the state entomologist? In that way that would prevent two men doing the same work—the state officer and the federal officer?

Mr. MARLATT. Undoubtedly, if you have efficient state service, with sufficient appropriation of money in that State to carry out this work, it could be done in that way. Of course you have to have men who know these things, and you have to have money enough to do the work. In Maryland they have found difficulty in getting money. In other States there are not men who know these things. In a good many States there are no men who are capable of making a proper examination of nursery stock.

Mr. STANLEY. Then, in that case, the States where the inspection was inefficient and ineffective would have to suffer unless they happened to come right to a border line. As I understand, most of these infectious diseases among plants spread comparatively slowly, and it is the same with these insects. I understood Doctor Howard to say that twenty years ago the gypsy moth was unknown in Massachusetts.

Mr. MARLATT. It was unrecognized.

Mr. STANLEY. The gypsy moth, I believe, is carried by automobiles and carriages, and as a rule these plant diseases infect a locality, and gradually spread from that locality; is not that true?

Mr. MARLATT. Yes; they spread slowly, like many other things; but when they get well started, then the danger has passed the point of control, as it has in Massachusetts. The whole point in this question that you have brought up each time is simply this: There is no equality in the different States or in the existing machinery. If every State had the same efficiency that New York has, your argument would be strong.

Mr. STANLEY. I am making it more as a suggestion than an argument.

Mr. MARLATT. Yes; your presentation would be strong. But the efficiency does not exist in the same degree in the different States, and never would so exist. In the first place, they have not got the trained men in the other States that they have in New York.

Mr. STANLEY. Is not your inspection service in a degree proportioned to the amount of importation? The majority of the States do not import much nursery stock.

Mr. MARLATT. Nursery stock is transshipped by the brokers or by the New York nurserymen.

Mr. STANLEY. There is not much danger from New York?

Mr. MARLATT. Those shipments trans-State are not inspected in New York State, as Doctor Smith stated.

Mr. STANLEY. This suggestion of mine that the state authorities be notified by the consignee, and that he be forbidden to open any consignment except in the presence of a federal officer or of a state officer, would prevent the spread of these diseases from importers in New York, because under such a statute, whether he was an individual or was importing for himself, or a corporation in the form of a nursery importing millions, they could not open one of those cases without the presence of a state or federal officer.

Mr. MARLATT. That would be perfectly true; but that brings it back to the theory of efficiency of the different state officers.

Mr. STANLEY. We are speaking of New York.

Mr. MARLATT. Oh.

Mr. STANLEY. You spoke of the danger of having this infected nursery stock carried all over the country by having it, as I understood you, imported into New York and then by that importer carried over the country.

Mr. MARLATT. You wish it to be inspected in New York?

Mr. STANLEY. Yes.

Mr. MARLATT. That brings it back to the condition which the nurserymen objected to—examination at the port of entry.

Mr. STANLEY. No; I mean where it is opened, not at the port of entry.

Mr. MARLATT. These large nurserymen import 15,000 trees in a package. They do not open that package.

Mr. STANLEY. If they do not open that package, but ship it into a State where you have insufficient inspection service, that State will suffer. But from a casual observation, without any experience at all, it seems to me, in the nature of things, your inspection of nursery stock would be almost in proportion to the amount of nursery stock imported. In other words, those States that are careless, as I presume my State is, are States where they import very little stock; and in States where your orchard interests are large, or where you import to any great extent, the enormous amount of trees imported would have brought to the minds of the state legislators the necessity for inspection. I presume your inspection in Massachusetts and in been the evolution of the necessity for it, and for that reason you New Jersey and in New York, and the adequacy of your laws, have would have but little to fear from States having little or no inspection, because they have little or no importation.

Mr. MARLATT. That argument is sound enough, except for one thing. One nest of the brown-tail moth establishes the insect, under ordinary conditions.

Mr. STANLEY. I am not arguing that. I believe that this law here would probably be more effective theoretically; but it might entail an enormous expense on the Federal Government, and that we have got to look into. As Mr. Beall has said, in all the States, every one of them, their legislators labor under a pernicious delusion that the minute the great Federal Government takes jurisdiction of any matter it is wasted money for the state government to do anything further in that. All you have to do is to get your Congressmen to get an additional appropriation from the Federal Government; that is money that comes out like bailing brine out of the sea; there is no bottom to it. The more you get out, the more there is left. The States are absolutely lying down when it comes to spending money

on any proposition where the same appropriation can be secured from the Federal Government, and the Members of Congress in their ardor to help their own States and secure larger appropriations are continually laying heavier burdens on the federal system.

Now, we have to look at two things, and that is what I want to get out of this gentleman here, not only the efficiency of this inspection, but we want to look at it from the standpoint of a federal officer—we want to get it at the least possible expense to the Federal Government. It is right and proper that the States which are endangered by these pests should appropriate money to help control them. This legislation is intended to be merely auxiliary. Now, what I wanted to get from the gentleman was, could not the Federal Government, by acting as a bureau of information, without doing identically the same work that your state officers do, materially aid the different state governments without incurring any great amount of expense beyond this expense in this bill, which is merely nominal? It is \$25,000 now; it may be \$250,000 or \$2,500,000 three years from now.

Mr. MARLATT. The answer to that is simply this: The States would do the work if they had the men and the money.

Mr. STANLEY. They would have the men and the money if they would appropriate the money and get the men. We can not make men.

Mr. MARLATT. We will accept that idea absolutely if you will guarantee the men to do the work.

Mr. STANLEY. We could not guarantee that you gentlemen would do it.

Mr. MARLATT. Well, we will make an effort. I mean you can not predicate of the States that they will appropriate the money and will do this work, and you gentlemen and we of the Agricultural Department represent the whole country, and it is our duty at least to try to protect the whole country from these insect pests. We believe, after a thorough trial of the other method for years with disastrous results, and at a cost to the country far more than this inspection would cost, that this having been tried and being a failure, the gypsy moth and the brown-tail moth and the San Jose scale and other insects are all illustrations of the failure of the other method, it is ripe for the Federal Government to take charge.

Mr. STANLEY. If the Federal Government takes charge of this, will there not be another effect? It is perfectly right; of course we want our home industries encouraged to the maximum.

Mr. MARLATT. Yes.

Mr. STANLEY. That is natural. Now, do you not believe that the minute the Federal Government takes charge of this business there will be an effort made on the part of the nurserymen, whose business is now being hurt by the cheaper importations from abroad, to use this inspection service not only to prevent importations of infected stuff, but to discourage the importations in order that the home producer may have a wider market and a better price? That would be another legitimate result of this legislation, would it not?

Mr. MARLATT. I fail to see how that will follow, for the simple reason that this bill puts no additional cost necessarily on the introduction of foreign stock. In other words, the bill simply gives information in advance that the stock is coming in. When stock

comes in, we know in advance of the arrival of it, and we can inspect it. That inspection is now going on. If it is necessary to fumigate it, he now fumigates it, or the authorities fumigate it, if it is necessary, or if it is necessary, destroy it. Therefore that does not affect his business at all. The only place where it will affect his business—and that may not occur in his lifetime, and may never occur—is in such a special thing as this potato disease or the necessity of quarantining against some foreign district where he has already purchased stock or expects to purchase it.

Mr. STANLEY. The abuse of that discretion would stop importations from that district?

Mr. MARLATT. I think any abuse would be very quickly corrected, and we can not assume that the Secretary of Agriculture would use the power given him in a foolish way.

Mr. STANLEY. My dear sir, the Secretary of Agriculture is in this case a composite man.

Mr. MARLATT. Yes.

Mr. STANLEY. Of course I do not mean to say he is impersonal. He will act through many employees and many influences.

Mr. MARLATT. Yes; but what I mean is this: If we have a disease of the pine which must be kept out because there is no means of checking it if once established, an order of prohibition is passed, based on the information given to the Secretary by his experts, and that makes a prohibition against importation of that pine. That does not affect apple or pear or cherry trees; and certainly the importer of pine does not want to go on bringing that in.

Mr. STANLEY. I am not asking these questions in a controversial spirit.

Mr. MARLATT. Yes, I understand.

Mr. STANLEY. What I want to get at, so far as I am personally concerned, is the maximum of protection at a minimum of cost.

Mr. MARLATT. The cost is based necessarily on the amount of stock imported, and, it has already been stated, importation does not reach a very large figure. The cost of inspection is simply the cost of the examination of these comparatively small amounts of stock, and as Doctor Howard stated, we believe that this will come within \$25,000; certainly a small sum to be paid for the protection it will bring.

Mr. PHILLIPS. One important point where it would aid the States, and this possibly has not been mentioned very fully, is that the department, as I conceive, under this act, if it was passed, would be charged with the study of these troubles in the foreign countries and in this country, and would formulate one set of regulations giving the insects and diseases. Without that much work done by the department, it would mean that every State to be fully protected would have to do all that work itself. In that case one board and one department would be considering that question, while if it was left to each one of the States, each one of the States would have to go through the whole thing to be able to pass judgment effectively upon it.

Mr. STANLEY. You have, as state entomologist, many other duties besides those of inspecting nursery stock?

Mr. PHILLIPS. Yes; but this one field would be sufficient to keep one man busy more than his entire time; and then he could not do

it. It can not be done effectively except by a central department of the Federal Government.

Mr. STANLEY. If it would keep one man busy his entire time in each one of the 46 States, how is \$25,000 going to do it?

Mr. PHILLIPS. Just listen a minute. One man in the Department of Agriculture here can be charged with investigating these different insects and diseases abroad and setting down the descriptions and methods of inspection. We are always finding new ones, and there is always something to engage the attention of this man, and that information will then be set down by him so that the individual inspector in the State can accomplish his work at the minimum cost and with the minimum of effort.

Mr. STANLEY. If you have somebody to spot these bugs across the water?

Mr. PHILLIPS. And tell us just what to do.

Mr. STANLEY. On this side?

Mr. PHILLIPS. Yes. Now, if we do not have that done for us, it is a specialty of itself, so that it would be impossible for each one of the States to do that work for themselves without an enormous appropriation. In the discussion this morning something was asked about the method of handling nursery stock, and whether or not as the plants are now handled as a rule by nurserymen it would not prevent the spread of these insects without inspection. That was about the idea. That was in the destruction of the parts of the plants that were not used for propagating. From an experience of some ten or twelve years in the inspection work, I must say emphatically no, to that question, because in our State, wherever I have seen it, these people are not familiar with these diseases, and are absolutely incompetent to inspect for them. They pay little or no attention to that. It is hard enough to get them to pay the proper attention to the insects they have every day. They would cut off the tops of these plants and possibly throw them in some waste place to fill it up and prevent it from washing, or something like that. If it is something that would spread that way, there is no trouble for them to get right out into the fields. That is a general measure that is followed. I have seen almost nothing of the destruction of those parts, except where it was made necessary; and on the other hand, often this packing is good for packing other plants. The insects may have gotten out of the plants and gotten into the packing, and gotten onto other plants that are never thought of as being infested and that are never inspected for these insects, and so they will get out.

Mr. STANLEY. The state legislature can do that, can it not?

Mr. PHILLIPS. Yes. I simply mentioned that as in the line of the work mentioned this morning. The field has been so fully covered that I do not think I care to make further remarks along this line, unless there are some questions.

Mr. SMITH. Just one point. The question was asked whether, in case this law was enacted, the States would seek to throw off on the Federal Government the entire cost of the nursery inspection. I wish to call attention to the fact that the inspection of foreign nursery stock is a very small portion of the inspection duties in any State, and that each State maintains a corps of inspectors for the protection of its people against the dissemination of diseases from the State

nurseries, and the nurseries of adjoining States. That has to be carried on without reference to this work of inspecting for diseases from abroad, which is the particular point of this bill.

Mr. RUCKER. Do I understand you to say that the States all now maintain state inspection?

Mr. SMITH. Most of them maintain a close inspection. Those States would have to continue that inspection to protect themselves from the dissemination of diseases already introduced. I make no reference to those States which have no inspection service.

Mr. RUCKER. Now, I want to ask you one question, Mr. Marlatt, if you will pardon me. Under existing law the Department of Agriculture has discovered the presence of various diseases of nursery stock and plants in foreign countries?

Mr. MARLATT. Yes, sir.

Mr. RUCKER. So that you know now there are certain regions that are infected with certain diseases or infested with certain insects that would be likely to spread in this country if stock was shipped from there to here without rigid inspection. The thought that occurred to me along the line of the inquiry of the gentleman from Kentucky a moment ago was this: If, having that information, acquired under existing law, the Agricultural Department should make that information known that certain regions, say, in France, are infested with the brown-tail or gypsy moth, or have these plant diseases, so that the general public would have information about that, and then would communicate to the state authorities the fact that a certain shipment is being made into the State to a certain consignee, would that man buy stuff, to be sent from abroad?

Mr. MARLATT. Will you repeat just that last sentence, please?

Mr. RUCKER. I say under these circumstances, the information having been given out that certain sections of a country from which we import stock are infested with insects or have disease, with a knowledge on the part of the importer that before he can use the stock it will be inspected, do you think he would buy it?

Mr. MARLATT. You refer now to the inspection here or over there?

Mr. RUCKER. No; I mean the inspection at his home in Maryland. If you will pardon me, I will make a concrete proposition in this way. [Laughter.] No, I mean this in good faith. I was very much interested with the statement that the gentleman from Maryland made, and I believe him to be entirely frank and candid, and the little controversy between him and me was pleasantry and nothing more. Suppose a gentleman who deals in nursery stock in Maryland was advised by bulletins, or the information disseminated by the Agricultural Department, that a certain section of France where he was in the habit of buying his stock was affected with certain injurious diseases or infested with certain insects, would he buy from that place in France, knowing that when the stock arrived in Maryland Doctor Symons would inspect it? Would he invest his money in it under those conditions? I may not have got my question clear.

Mr. MARLATT. I understand you in this way: The information has been made available to the nurserymen that certain regions in Europe are infested.

Mr. RUCKER. Yes.

Mr. MARLATT. Would the nurserymen then buy stock from that region, knowing that Mr. Symons would inspect it? The answer

to that question is that they do. All of these nurserymen know that Europe is infested with the brown-tail moth and more or less with the gypsy moth, and they nevertheless make their purchases; and Mr. Symons, and Mr. Atwood, of New York, and others in different States, make these inspections.

Mr. RUCKER. Knowing that before the citizen of Maryland can receive the package he is obligated to pay for, he has received it?

Mr. MARLATT. Yes.

Mr. RUCKER. And he has paid the transportation charges on it?

Mr. MARLATT. Yes.

Mr. RUCKER. He has invested his money in it?

Mr. MARLATT. Certainly.

Mr. RUCKER. Do you believe that a prudent business man is going to make that kind of an investment, buying stuff from a region that is condemned by the Department of Agriculture, knowing that a gentleman in the State who cooperates with the Agricultural Department has passed judgment on it, and knowing that it is to be destroyed?

Mr. MARLATT. You refer now to districts abroad where quarantine restriction has been established by the Secretary of Agriculture?

Mr. RUCKER. It could not be shipped if it was quarantined.

Mr. MARLATT. It could be shipped, but it could not be landed.

Mr. RUCKER. I am assuming that the Secretary of Agriculture merely imparts to the people the knowledge that he has acquired.

Mr. MARLATT. Then that would not be quarantined, and the nurserymen would bring it over with the knowledge that it would be inspected. That is the condition now. The nurserymen know that France is infested with the brown-tail moth, and they are this winter importing more stock than ever.

Mr. RUCKER. And under that inspection they expect to get rid of that brown-tail moth, or the eggs, or the young moths, or whatever they are?

Mr. MARLATT. Yes.

Mr. RUCKER. Of course, under exceptional cases, a nest might escape, but it has not escaped in any numbers in recent years, or rather, at any time?

Mr. STANLEY. He speaks of France being infested with the brown-tail moth. France is a big country, nearly as big as the United States. Suppose we should appropriate money sufficient to put a corps of men in France to locate various insects and plant diseases.

Mr. MARLATT. Yes.

Mr. STANLEY. And they would notify the importer and the Secretary of Agriculture to the effect that in the northeast portion of the Province of Alsace or of Lorraine—that would be Germany now, but take that for illustration—the eastern part of France, or Normandy, or some province of France, there was a nursery in such a geographical locality, fixing it definitely, that was infested with brown-tail moths, and they were all around the nursery and in the nursery, and he would notify the importer here, and the inspector here whose duty it was to look into this matter, and would notify the Secretary of Agriculture, and they would notify the entomologists of the States. Now, here is Mr. Brown; he is a nurseryman; he is in the habit of importing nursery stock from that particular nursery. He is notified

that that nursery is infested, and he knows that it is known at the port of entry, known to the Secretary of Agriculture, and known to the state entomologist, and that his consignee, whoever he may be, and himself both will have to violate the law if that package is opened before it is inspected; do you believe that he would put his money into a consignment that would have to run a gauntlet like that?

Mr. MARLATT. He probably would abide by the law and have his package opened and inspected. We do not anticipate that the nurserymen are going to try to evade the law. If this package is shipped it is going to be opened and inspected, and freed from the infestation, or destroyed if it can not be freed.

Mr. RUCKER. You think, then, that the fact that a nurseryman here who buys largely in foreign countries, notwithstanding he is notified in advance that stuff he buys in all human probability is badly diseased and full of insects and is subject to inspection before he can dispose of it, would still invest his money in it and bring it here?

Mr. MARLATT. I think undoubtedly he will; they are doing it.

Mr. RUCKER. That is by reason of the lax administration of state laws, is it?

Mr. MARLATT. Oh, no; if I understand you, the nurserymen are now doing that very thing. The nurserymen of New York, who are the big importers, know that every box they bring into the State of New York will be opened and inspected, and probably a lot of it will be badly infested, and probably fumigated, and some of it destroyed, and they are importing with that knowledge to-day.

Mr. RUCKER. I am not antagonizing you in this matter, at all.

Mr. MARLATT. Certainly; I understand.

Mr. RUCKER. I want to be entirely respectful to your views, and I hope I have been.

Mr. MARLATT. Entirely so, sir.

Mr. RUCKER. One great ground of your advocacy of this measure, as I understand it, is that you have a doubt of the efficiency and efficacy of state inspections. You doubt first the competency and adequacy of state agencies?

Mr. MARLATT. Yes; in a broad way that is true.

Mr. RUCKER. Do you believe that that apprehension is fully justified; that a man must come from a certain section or from a certain department in order to be qualified to perform the work assigned him by a State? Or, let me follow up with one other suggestion. Do you not believe that the apprehension in part unconsciously, perhaps, grows out of your strong devotion to this particular measure?

Mr. MARLATT. Well, the answer to that, it seems to me, is simply the facts, the recent history. Inspection in certain States is evidently lax. Inspection in other States is good. We have always to come back to that condition, the lack of uniformity of inspection, where you have to have great uniformity to secure as perfect results as possible. If you could guarantee uniformity in the States, I would give up all interest in this bill.

Mr. RUCKER. Do you think absolute uniformity is essential?

Mr. MARLATT. I use "absolute" not in the exact sense, but meaning substantial uniformity.

Mr. RUCKER. Rigid investigation and inspection?

Mr. MARLATT. Exactly; rigid investigation and inspection.

Mr. RUCKER. Let me ask you one other question. Fruit growing is going to be a great business in the United States?

Mr. MARLATT. Yes.

Mr. RUCKER. In all sections of it?

Mr. MARLATT. Practically all over the United States.

Mr. RUCKER. And it is on the increase?

Mr. MARLATT. Yes.

Mr. RUCKER. It is a source from which many men derive their livelihood, a source of great profit to the States and to the nation?

Mr. MARLATT. Yes.

Mr. RUCKER. Do you believe that the people of a State where fruit culture is indulged in or carried on would be so indifferent to all that wealth of the proceeds of the soil and labor devoted by its citizens as to be indifferent to these pests that work such ravages as have been described here to-day?

Mr. MARLATT. Indifference comes of ignorance. If you do not know of a danger you are not afraid.

Mr. RUCKER. I know; but with the Department of Agriculture, so ably presided over in all its departments as it is to-day, and disseminating so much useful information, that is absolutely true?

Mr. MARLATT. Yes.

Mr. RUCKER. The greatest department in the Government, I think, disseminating information every day in thousands of directions.

Mr. MARLATT. Yes.

Mr. RUCKER. Do you not believe that the people will after a while acquire almost as much information as the man in Washington has, or might do it?

Mr. MARLATT. We hope they will.

Mr. RUCKER. There is no limitation of the amount of information a man in Missouri or anywhere else might acquire?

Mr. MARLATT. If he has the capacity and will do the work.

Mr. RUCKER. There is no statute of limitations on it?

Mr. MARLATT. No; no statute of limitations.

Mr. RUCKER. I did not think so. It occurred to me that some enterprising man might spring up, and some man will spring up, that is able to do the work, and I believe that your apprehensions are not well founded as to the lack of capacity of state officials to do the work that is so close to the welfare of the people of the State.

Mr. MARLATT. The point you made was, Why are not the people who are so much interested in that great industry doing something? If you put this matter to them I think ninety-nine out of one hundred of the orchard men would be very strongly in favor of this measure, and probably a very large percentage of the nurserymen who are not importers would be very much in favor of this measure.

Mr. RUCKER. I am rather inclined to think you are right about that; but is that a good reason for spending this money, that somebody wants the money spent out of the National Treasury instead of letting the States do it? Would not the growers be perfectly satisfied to let the state officers inspect that stock so as to protect them and be efficient?

Mr. MARLATT. That is true in California, where the fruit interests are the large and predominating interests, and inspection and quar-

antime have been efficient for many years. The interest in those provisions is enormous in that State. They are spending enormous amounts of money out there every year for quarantine and inspection. The whole State is back of it. But that does not give protection to a prairie State, where there are not such large fruit interests, and where these pests may become established, Kansas or Missouri or any of these intermediate States, Iowa or Illinois, for instance, where the interests are not nearly so large; and the chances are that the same universal efficiency is not present.

Mr. RUCKER. That is assuming they are not developing in the horticultural business; but as a matter of fact I believe all that section of the country is developing rapidly, and while they have not up to date possibly put forth so much activity as they might have done, do you not believe that the interest is growing?

Mr. MARLATT. Yes; but the danger is immediate; it is not prospective; it is now.

Mr. RUCKER. Then, in view of the indifference, due partly to the ignorance of the people of the States, of their own rights and interests, do you not believe, or do you believe, if this bill was passed and this inspection put under governmental control, national control, instead of state control, that the States would hereafter take any interest in it at all? Would they leave it all to the National Government to do?

Mr. MARLATT. I do not think that would apply. It might in some cases, but I do not think it would be the rule.

Mr. RUCKER. What would be your judgment as to the best way for them to do, to exercise some state activity, or leave it all to the National Government?

Mr. MARLATT. The National Government could only do the work by using the existing trained men in the different States. The object of the National Government is simply to coordinate the work and make it uniform.

Mr. RUCKER. Have we not men competent under the Agricultural Department?

Mr. MARLATT. Not in every State; not in sufficient numbers in every State.

Mr. RUCKER. That being true, you could go to Missouri and Maryland and get plenty of competent men to put in the States where they are short of material?

Mr. MARLATT. Who could do that?

Mr. RUCKER. The States could do it?

Mr. MARLATT. Do you think Missouri would send a salaried man to Maryland?

Mr. RUCKER. I do not mean to be impertinent, but the Department of Agriculture went all the way to Kansas and got the distinguished gentleman here. Do you not imagine that some day Kansas might recall you?

Mr. MARLATT. It has not worried me.

Mr. RUCKER. I beg your pardon, Doctor.

(At 4.30 o'clock p. m. the committee adjourned until to-morrow, Thursday, April 28, 1910, at 10.30 o'clock a. m.)

COMMITTEE ON AGRICULTURE,
HOUSE OF REPRESENTATIVES,
Thursday, April 28, 1910.

The committee met at 10.30 o'clock a. m.

The CHAIRMAN. The committee will be in order. I understand that Mr. William Pitkin, of New York, who is chairman of the legislative committee of the American Association of Nurserymen, will be the spokesman for gentlemen who have objections to make to this bill, and we would be very glad to hear him or anybody whom he may introduce.

STATEMENT OF MR. WILLIAM PITKIN.

Mr. PITKIN. Mr. Chairman and gentlemen of the committee, our committee represents the American Association of Nurserymen, which is a national organization, which has affiliated with it smaller organizations, local organizations, and state organizations; but the American Association is the national organization of the nursery trade. It has a membership reaching from coast to coast, from the Lakes to the Gulf. For example, in the State of New York there were issued last year to nurserymen and growers of nursery stock about six or seven hundred certificates; that is, six or seven hundred people engaged in the trade. Pennsylvania, I believe, issued three or four hundred; Ohio three or four hundred. I simply mention that as an example of the interests that are involved in this matter.

In addition, every nurseryman, every man that grows trees, employs labor in considerable quantity, and there are also thousands of traveling salesmen who are disposing of the products of the nurserymen in every State of the Union. The orchard people who take our products are directly interested in anything that affects the nurserymen and affects the cost of the tree, for the ultimate consumer somewhere has got to pay the bill. This is an important and a big question, and should be considered carefully and decided with good judgment. It is not a small matter, that applies only—as was stated here yesterday—to about 20 importers, to be disposed of off hand by giving them \$300,000. It can not be settled in that way. It affects every nurseryman and every grower of fruit trees, and every man that buys a fruit tree. We have not at our command a number of scientific people that we can bring here to answer some of the statements that have been made, but we simply come here as nurserymen to tell you what we know about the nursery business, and we are ready to answer questions which you may wish to ask us. We will try and answer them to the best of our ability, and, certainly, they will be answered truthfully.

We do not wish to argue on the scientific questions that have been presented, the scientific points in relation to plant diseases and to insects. We do not know. We assume that those statements are correct. We certainly hope that they are nearer the mark than some of the statements that were made as to the nursery business, many of which, to our minds, appeared absolutely ridiculous. That is frank, but that is right.

The CHAIRMAN. Would you mind, in that connection, calling our attention to some of the statements in regard to the nursery business that were wide of the mark?

Mr. PITKIN. I think that there were some that were wide of the mark. Some that were not intentionally misleading, but would mislead the average listener who did not understand the subject. A statement was made that would give the impression that this matter simply affected a small number of importing nurserymen, about 20, or not less than—

Doctor MARLATT. I said 20 to 100.

Mr. PITKIN. Not over 100.

Doctor MARLATT. How many are there?

Mr. PITKIN. What I was about to say was this: That the seedlings, which are the chief topic of discussion, are handled and used by 95 per cent of all the nurserymen or growers of trees that grow fruit trees, with the exception, possibly, of the men who simply grow peaches, which are not imported, and apples. There is a larger percentage of that grown from American-raised apple seedlings. There was a statement made—I do not say it was intentionally misleading, but it would leave, perhaps, the impression that the nurserymen were responsible for the introduction of the brown-tail moth.

Doctor MARLATT. I beg your pardon. You have made the direct charge as to my statement and yet you have not given the number of importing nurserymen.

Mr. PITKIN. I could not tell you.

Doctor MARLATT. Is it more than 100?

Mr. PITKIN. I simply say that while nurseryman A may import and nurseryman B may not import, nurseryman B uses those imported seedlings.

Doctor MARLATT. That is what I say, also.

Mr. PITKIN. He gets them either direct from France or through somebody in this country who does import them and sells them to him.

Doctor MARLATT. Didn't I make the statement that these seedlings were distributed to all the nurserymen, or many of the nurserymen?

Mr. PITKIN. I think you did.

The CHAIRMAN. The record will show. I do not think that need be dwelt upon.

Mr. LAMB. Tell us about the moth, and whether you think—

The CHAIRMAN. You had started to say that a wrong impression was created in regard to the introduction of the gypsy and brown-tail moth.

Mr. PITKIN. Doctor Howard made the statement in speaking of brown-tail and gypsy moth in Massachusetts that the brown-tail moth came in on nursery stock. He stopped there. When he was asked the question, he said nursery stock was not responsible for gypsy moth. But I think it would have been a little fairer if the doctor had coupled the two statements at the same time.

I am glad to say, however, that we have not come down here to antagonize the principle of inspection and control. I am glad to see from this discussion that we are united on the principles for which this bill stands. We have a little difference of opinion as to the best methods to be pursued. Those, I believe, are honest differences of opinion, and we ought to be able to get together. We have tried during the past year to agree by correspondence. We have agreed

on a good many points that were in difference a year ago. Possibly if we could have had a heart-to-heart talk with the officials of the department other things might have been straightened out. But I think Doctor Howard will bear me out when I say that our committee tried vigorously and earnestly to get him to name a date for a conference, and that thus far we have not had that pleasure; that we met the doctor in December in Boston at a meeting of the horticultural inspectors, at which time it would have been easy for the interests to have had a conference, and we did not succeed in having one then. We have done what we could by correspondence, but that never is as effective as a face-to-face talk.

I think it is fifteen or twenty years ago that the committee of the Nurserymen's Association spent their time during several sessions of Congress endeavoring to secure federal legislation that would cover the inspection of nursery stock, both domestic and foreign. They were unsuccessful in getting Congress to pass such legislation, and I think one of the principal objections was that the committee at that time, and the leaders, felt that it would require too much money. The appropriation that was asked for then, I believe, was \$100,000, and it was objected to on the ground that it was too much; and that even if it were started at \$100,000, it would rapidly climb up and pile up until it would require a good many times that amount within a few years, and I think that has been the general experience in all matters of this sort. And I believe if this bill is adopted, you will find the same result within the next few years. After the nurserymen found that they could not secure any federal legislation, they took up the work in the various States, and cooperated with the fruit growers, with the entomologists, and others, and have done what they could to assist in securing state legislation on these same general lines. Some of this legislation has been wise, and some has been otherwise. But almost every State has some sort of legislation and some sort of official inspection, and the nurserymen have marched along with the others in securing that legislation, and I think every state official that has any knowledge of the matter will back me up in saying that the nurserymen have always been ready to cooperate and that we are not opposed to inspection and control if it is done on lines that are safe and sane and practical.

New York State has appropriated, or is appropriating, to-day, \$50,000 for the care of nurseries and orchards; Pennsylvania, I believe, \$30,000; other States, the same way, in smaller amounts. I am not familiar with all of the appropriations. I know that in New York State a very large part of the work in getting that appropriation has been done by the nursery interests, and I think the same thing applies to Pennsylvania, Ohio, and other States.

The nursery business is a risky business, anyway. We are subjected to sudden and large losses on account of climatic conditions, on account of hail, frost, heat, and drought. It is hard work for the nurseryman to make very much money out of his business, and if anybody can point out a nurseryman who has accumulated any fortune out of the nursery business in the last few years, I would like to meet him. We have risks now, and every trouble that is added, for instance, if there is double inspection, as might be pos-

sible under this bill, means additional risk from delay, and all that sort of thing, which we are anxious to avoid.

Mr. LAMB. Excuse me, but are you for this bill or against it?

Mr. PITKIN. I think I said, sir, that we were united on the principles of the bill, but not on the methods.

Mr. LAMB. That is what I was referring to. Give us a reason why you are against it.

Mr. PITKIN. I am going to try to do that, sir, if I may have the time. I want to take a moment to show you, if I can, a definition of this material that we are discussing. The nursery stock imported has, in some instances, been referred to as simply nursery stock or seedlings, all under one head. Now, that might properly be divided into three classes of material. First, the seedlings of fruit trees, from which the fruit trees are grown; the seedlings of ornamental trees and shrubs. Those two items are the raw material which are used by the nurserymen, and imported and planted in this country from which the finished product comes. There is another item imported, which might be called the finished product, the larger size ornamental trees and shrubs. But the raw material, the seedlings, make up the largest proportion of the importations. Those seedlings, when they reach the nurseryman, are little plants, rooted, in diameter, say, from one-eighth of an inch to a quarter of an inch or a little larger, and in length from 5 or 6 up to 8 or 10 inches, having on an average between ten and twelve thousand in a case. They are the raw material that is planted.

The statement was made in the testimony yesterday that the value of those importations was \$300,000. That is the value for dutiable purposes. I presume that is true. I do not know. But that simply represents the first cost of that raw material, and when that material goes on to the market, there has been added to it the labor, the land rent, cultivation, and all of those items which go to make up the cost of the tree when it gets on to the market.

The nursery business must have stable conditions. The seed that was bought in France in 1908 was planted in 1909, came to this country in the form of seedlings in the winter of 1910, and goes onto the market as a merchantable tree in 1913 or 1914. There is an interval of five or six years. The nurserymen must plant ahead, and while he can adapt himself to stable conditions, he must know what those conditions are going to be, in order that he may do his business safely.

We still have faith in the state laws and the state inspections, although some of our friends yesterday confessed that they were doing pretty poor work. But we still have faith in them, and we believe they can take care of us; and if there is an appropriation already made by the Federal Government to the experiment stations in every State of the Union of from fifteen to twenty thousand dollars, annually, could not some of that money be used to bolster up the state organizations which are now deficient?

Now, as to some of the points that were made in the testimony yesterday. I have already answered some. A statement was made about the business being confined to twenty importers. As I said then, every nurseryman who grows a fruit tree, with the exception of apples and peaches, uses French seedlings, which he either imports

himself or buys from somebody who does import them, and he depends on that supply for his raw material.

Mr. HAWLEY. Those seedlings produce better trees, and are of sturdier stock, are they?

Mr. PITKIN. Yes, sir; that is the reason we buy them. We are to-day importing apple seedlings from France in preference to using American-grown apple seedlings; and at the average price prevailing for the last five or six years in both countries we are paying about double for the French seedling that we could buy the American seedling here for. We do not do that for the fun of throwing our money away. We do it because we get better seedlings and better results from the French seedlings.

The CHAIRMAN. Have you any theory as to why, just in a word, they can grow better seedlings in France than we can here?

Mr. PITKIN. I suppose the soil and climate have something to do with it, and the French seedlings, as I understand it, are grown from the French crab-apple seed and the seedlings produced are very uniform in size and strength and vitality, while the American seedlings are grown from seed from cider mills, the pomace; and as you all know, the supply to the cider mill comes from all sorts of varieties of apples, good, bad and indifferent, and all go in together.

The CHAIRMAN. Has any nurseryman ever tried the experiment of planting selected seeds?

Mr. PITKIN. The apple seedlings have been grown very largely in this country. Up to a few years ago, I think, there were more American apple seedlings used than French apple seedlings, but the drift seems to be the other way, and I think the preponderance is very largely in favor of the French apple seedling. Pears and cherries and plums and quinces and roses are almost exclusively French stock. Numerous attempts have been made in this country from one end to the other by the nurserymen to grow their own seedlings, with uniform failure, as far as my knowledge goes. I know we have tried it. I know others have tried it. I suppose some of the gentlemen here have made experiments in that direction and have given it up.

Mr. HAWLEY. Have you ever followed the trees that have been planted, first, from the American-grown seedlings and from the French-grown seedlings that have been planted here, to find out the difference in the quality of the fruit and productivity of the trees?

Mr. PITKIN. I have not; no, sir. The question was asked yesterday if the nurserymen continued to buy, or would buy, stock from infested districts in France, or districts known to be infested. Mr. Marlatt answered the question by saying that they do. I would also make the same answer. We do buy these fruit seedlings, and have during the past year, from infested districts in France, that we knew were infested with brown-tail moth; and why? Because it was the only source of supply. If we did not buy them there, we could not buy them anywhere else, and, in some instances, the contracts for the seedlings that are coming in this year were made in 1908, previous to the discovery of the brown-tail moth in nursery stock on this side. Now, I think you all will agree with me that it was a pretty safe gamble—call it a gamble if you wish—for the nurserymen to buy those seedlings knowing that they might have brown-tail moth, or feeling that they might, for the records show that in

the season of 1909 in New York State alone—I have access to those records, and that is why I mention New York—that in New York State there were 700 boxes of seedlings in which there were found nests of brown-tail moth, and those infested boxes average 10 of those nests to a box, making 7,000 nests. There was a total, I believe, that year, of about 7,000 boxes imported, and the average that those boxes contained was from 10,000 to 12,000 seedlings in a box. If they averaged 10,000, that was 70,000,000 seedlings, and if they found 7,000 of them that were infested, and that infestation was easily discernible, and the 7,000 seedlings were destroyed, certainly we were not taking very much risk by importing those seedlings, and as I have said, it was the only source of supply.

Now, to go a little further on that matter, I think those figures are substantiated by the ones given by Mr. Symons as to the number that were found in Maryland. He said that in 1909 there were a million and a half seedlings imported, and they found 500 seedlings infested. In 1910, two million and a half, and they found 750 seedlings infested.

The CHAIRMAN. As a matter of fact, it is not significant, is it, what the percentage of infestation may be? For example, if we were inspecting human beings coming into this country, we might find a million healthy and then find another one with the smallpox. We exclude the one just the same as if there were half a million of them.

Mr. PITKIN. I do not think the cases are exactly parallel, Mr. Chairman. Let me go a little further. Those seedlings when they reached New York State in the season of 1909, or the winter of 1909, were examined by the state inspectors. They were gone over very carefully. The figures that I have given were taken from their reports. In the natural order of the business, the nurserymen again handle these seedlings, one by one, in trimming them and preparing them for planting. Those nests, as a rule, are found on the extreme tip of that seedling and are plainly discernible. These tips are always cut off anyway, and any seedling that was infested was easily seen and destroyed. Again, when those seedlings were planted they were again handled one by one by the nurserymen, and again looked over, making three inspections, two of which had to be made in the natural order of the business. During the summer of 1909—to show that that was effective—during that summer every nursery in New York State was gone over with a fine-tooth comb by the state inspectors and by the nurserymen themselves, and they failed to find one single trace of brown-tail moth.

The CHAIRMAN. The only point to my remark was the suggestion lying back of it—that if those 700 nests had been overlooked, the damage to the country would have been just as great as if there had only been 700 importations instead of 70,000,000.

Mr. PITKIN. There is no argument on that.

Mr. HAWLEY. Do you know of any case where the nursery stock, inspected as you have just outlined and then planted by the nurserymen, any brown-tail moth developed in the nurseries, or from the stock?

Mr. PITKIN. I do not know of any. I do not know of any that have been reported and never heard of any.

Mr. McLAUGHLIN. You say these moths are easily discernible. Perhaps they are to those who are experienced and skillful, but evi-

dently all do not have the same skill. You remember the statement that was made about the nest that was found in Louisiana where the nurseryman wasn't able to distinguish it and the state entomologist wasn't able to tell what it was and had to send it to the department here to have it examined.

Mr. PITKIN. That was called a case of infestation in Louisiana. I do not say that it should properly be called infestation in Louisiana. That stock arrived there, as I understood the statement, with these eggs or nests on it and was discovered, and the state inspector, or county inspector, or whoever he was, some official, in the ordinary course of his business discovered this trouble. He was suspicious and perhaps not well enough posted to say definitely just what it was, but he was suspicious and he sent specimens to Washington, which he should have done in the natural order of his work. Now, in the winter of 1909—

Mr. RUCKER. That was the first inspection those trees were subjected to, was it not?

Mr. PITKIN. I do not know. Doctor Howard probably can answer that question.

Mr. RUCKER. That nest of eggs that was sent to you from the State of Louisiana, that was the first inspection of those trees?

Doctor HOWARD. Yes, sir; the first inspection.

Mr. RUCKER. And they were discovered, Doctor Howard?

Mr. LAMB. Do you hold that the present state laws are effective and sufficient, or not?

Mr. PITKIN. I made the statement, I think, that we still have faith in the state laws and state regulations.

Mr. LAMB. I recall that, but we would like to hear you on that point, because that is the point in this case, whether the States are effective in their inspection or not, whether the state inspection is sufficient to keep this moth from devastating this industry.

Mr. RUCKER. It seems to me the best answer in the world to that question is that so far no damage has resulted, and the trees have been inspected under state inspection.

Mr. LAMB. Is that shown?

Mr. RUCKER. It is not shown to the contrary.

Mr. PITKIN. Perhaps this might be an answer to your question. This is a telegram and a statement made by the assistant commissioner of horticulture or agriculture of the State of New York. I think that is his title. At any rate, he has charge of the inspection of nursery stock and reports an importation. He says, "We believe the department has done and is doing as thorough work inspecting importations after admission to the State as possible—thus far with excellent results." I think it was stated by some of the witnesses yesterday that New York had an excellent organization and was doing considerable work.

The CHAIRMAN. That statement was made, but it was coupled with the statement that in a large number of the States of the Union the inspection was indifferent and inefficient, and it has also been shown that the inspection laws of New York do not take in account all stock which is introduced, simply for the purpose of being transshipped to other States, so that the efficiency of the New York inspection laws, as I have understood the testimony, will not guarantee against

the inefficiency of the State of ultimate destination. We would like to hear any suggestions you have to make along that line.

Mr. PITKIN. New York State does not build a fence around the State. It leaves the gate open for nursery stock of all kinds and from all sources to enter the State, but when it gets into the State it is taken care of by the state department, and no nurserymen can handle stock and no planter can plant stock from outside of the State until it has been inspected by the state officials, and no nurseryman within the State can ship either to his customers within the State or outside of the State until his nurseries have been inspected.

The CHAIRMAN. I take it that in the administration of any federal act that might be passed the government officials would take cognizance of the efficient state law and of the effective administration of such a law, and in all probability would accept the certificate or the word of the state officials. So that even if such a bill as we now have before us should be passed, is it not likely that the nurserymen of New York would really come very little in contact with the federal officials? I should like to have you point out in just what way, when you reach it—of course I do not mean to interfere with your own method of procedure—but before you close I hope you will point out to the committee in just what way you think the business of New York nurserymen, we will say, where the local law is effective and well administered, is likely to be hampered in any way by the passage of such a bill.

Mr. PITKIN. I will try and reach that, Mr. Chairman. I have a note of that.

The CHAIRMAN. Very well. I simply do not wish you to pass it by without comment.

Mr. PITKIN. It seems from the testimony that it is entirely possible for the state organizations to be efficient and thorough and afford sufficient protection. It is admittedly so in New York and some other States and if there are some States that are deficient, should not those organizations be bolstered up and their laws amended if necessary; and it certainly can be done by the cooperation of the entomologists and nurserymen of the Washington department.

Now that brings me to just that question of expense which I heard raised yesterday. The statement was made that if this bill was adopted that it would not mean an expense of over \$25,000 to the Federal Government and probably a good deal less. I think one of the suggestions that was made was that it might enable the department to have necessary men in Europe studying these new troubles and diseases and insects and that they were going to rely on state organizations to carry on this work, and in that way very little money would be necessary. It seems to me that it is going to take some money to maintain a corps of investigators in Europe and in this country; \$25,000 does not go very far.

Mr. McLAUGHLIN. On that point will you permit a question? Have you in your business received importations accompanied by a certificate showing inspection?

Mr. PITKIN. You mean inspection on the other side?

Mr. McLAUGHLIN. Yes.

Mr. PITKIN. Yes, sir.

Mr. McLAUGHLIN. How have you found those goods, as the certificates states, free from pests, or otherwise?

Mr. PITKIN. We have never regarded those certificates as of any value whatever.

Mr. McLAUGHLIN. Is that because you have found pests in trees or shrubs, or rather in your importations, contrary to the certificate?

Mr. PITKIN. Yes, sir; and the statement was also made in the testimony yesterday that they were not regarded as of any value, and yet one of the provisions of this proposed bill covers this point, that any box of nursery stock arriving on this side without a worthless foreign certificate is to be held up in quarantine at the port of entry and not admitted to customs entry. Now, what is the use of holding up a box of nursery stock because a worthless certificate might happen to have been pulled off in transit, and to hold that in quarantine at a season of the year when freezing weather prevails, and the conditions on the New York docks are not favorable for the proper storage of perishable goods. That is one of the things in this bill, one of the details, or the methods, to which we object.

Mr. McLAUGHLIN. I know the statement was made that in many cases those certificates were worthless, but I did not know whether that had ever happened in your experience.

Mr. PITKIN. That was so stated by the department officials and the nurserymen frankly and freely admit it; and we have taken the position, consistently and religiously in all this discussion, that we did not want anything admitted into this country on the strength of a foreign certificate of any kind. We want it admitted, but inspected here.

The CHAIRMAN. The bill provides that in case stock is offered for entry without the certificate, it shall be held in quarantine, either at final destination on the premises of the owner or consignee, or at the port of New York, or other designated place, according to the opinion of the Secretary of Agriculture. Is it not to be presumed that if conditions in New York, as regards weather or otherwise, were such as to make it probable that to hold them there would injure the stock, the Secretary would take cognizance of that fact and permit it to be taken elsewhere?

Mr. PITKIN. That would be the very natural way to regard that section, Mr. Chairman. But if you will read it carefully I think you will see that it states first that nursery stock reaching this country without a certificate shall be denied customs entry; am I right? That it shall not be admitted to customs entry.

The CHAIRMAN. I believe that is the reading of the bill.

Mr. PITKIN. Will you point out to me how any article that is refused customs entry, which we can not enter at the customs-house, how we can get it onto our premises?

The CHAIRMAN. It seems to me the proviso would take care of that.

Mr. PITKIN. That proviso does not abrogate present laws.

Doctor MARLATT. It is a part of the law.

Mr. PITKIN. Is there not a general law to cover that point? I brought that point out in the correspondence with Doctor Howard. I think he may remember it.

Doctor MARLATT. Mr. Chairman, if I may be permitted a word in explanation of this. It is supposed, as I stated yesterday, that the

large importers will know all about this law and comply with it. A great many small importers may bring in packages, small lots of nursery stock, as shown yesterday, and will know nothing about this clause, or fail to comply with it, and this proviso is made to meet that situation, so that if the importation is large it can be sent to destination. If it is small and we can handle it in New York, we will do it there or ship it to Washington by mail and handle it here. That proviso is made purely to cover the case of these small importers.

Mr. PITKIN. Mr. Marlatt, will you answer this question: Does not the law give you or some official the power to hold up at the port of entry any box which is not accompanied by foreign certificate—any box, under that section?

Mr. RUCKER. It makes it unlawful for them to offer it for entry.

The CHAIRMAN. I think it is common legislative practice to let the first part of a section contain an unqualified prohibition, or what would be an unqualified prohibition if it stood by itself, and then to let a proviso in a subsequent part of that section modify the first part, and, of course, both will be construed together. Of course, that is a detail that may be discussed by the committee when they come to consider this bill more carefully. But without going into it at any great length, it seems to me the construction put upon this by Mr. Marlatt is a reasonable one, and that the proviso would be construed as modifying the prohibition laid down in the first part of the section.

Mr. PITKIN. I am not a lawyer, Mr. Chairman, but it seems to me very clearly that there are contradictions in that section, and that under the general law relating to custom-house entries, that says it can not be offered, it is unlawful to offer for entry, that certainly if you can not enter it at the custom-house, you can not get those goods onto our premises and hold them there in quarantine as proposed by the later section. I am not deciding the legal points, but that occurs to me, and it seems to me to be something about which there should not be any doubt.

The CHAIRMAN. We are very glad to have your suggestion, and it will be taken into consideration by the committee.

Mr. PITKIN. I am offering this simply as suggestions. Mr. Marlatt's interpretation, of course, is reasonable, but it leaves the door open, as we look at it, for trouble, because we have to depend on the judgment and discretion of the official who administers this law, and who that may be in the future nobody can tell. We may be entirely safe in the hands of Mr. Marlatt and Doctor Howard, but we do not know who their successors may be.

Mr. RUCKER. Mr. Chairman, I do not wish to enter into any discussion of the matter now. As the chairman has stated, the proper time to discuss that will be later, but I want to say that I do not subscribe to the definition given by the gentleman. I do not think the proviso relieves the penal clause, the penal offense prescribed in the first part of the section.

Mr. PITKIN. When the nurserymen proposed federal legislation twelve or fifteen years ago, the strongest objection that we met with was the question of expense. We only asked then for \$100,000. It was thought that it would soon amount up to half a million or more, and it seems to me that you are going up against the same conditions on this bill. The \$25,000 provided for is not going to cover it.

Statements were made yesterday to the effect that it was proposed to carry out this law by the aid of these state organizations. Now, we will take the other side of the question. We have said we had faith in the state organizations, but judging from the testimony that was given yesterday most of these state organizations are almighty deficient, and if they are going to be bolstered up to do this work, according to the pattern of the State of New York, which seems to be regarded as a good sample, is not that going to cost a good deal more than \$25,000 to put those deficient state organizations into condition where they would be able to give any assistance to the federal department. I do not think \$25,000 would be a drop in the bucket.

Mr. STANLEY. The efficiency of this \$25,000 would depend on the number and extent of importations. I do not mean the number of trees, but the number of packages. Can you give me any data as to the approximate number of packages of plants that come into the United States from abroad during the year?

Mr. PITKIN. Our estimate is that about 100,000,000 fruit-tree seedlings alone come into the United States—

Mr. STANLEY. I beg your pardon, but that is not what I am driving at. If that 100,000,000 came in in 20 different packages or in a dozen different packages to the different importers, it would be easy enough for the Government to send some man there for two or three thousand dollars, and let him give his whole time to examining those packages. Under this law, if there are a great number that go all over the country, and they have got to send the men around on the railroad to meet a handful of slips or seedlings here, there, and everywhere, it would be absolutely inefficient. In other words, it strikes me that under this act the Government can inspect in New York or Kansas or Missouri 15,000 trees just as cheaply as it can 15, or approximately so.

Mr. PITKIN. Those seedlings reach here in original packages. New York and a large number of the coast States, Alabama, Oregon, and Kansas, Nebraska and Michigan, and I guess almost every State in the Union gets those seedlings in original packages, and they have got to be handled there.

Mr. STANLEY. Have you any idea how many original packages come into the United States?

Mr. PITKIN. As I stated, there were 7,000 packages reached New York in the season of 1909. And another point, practically all of this, or nearly all of it, arrives during the winter months, within a period of between sixty and ninety days, the bulk of it, and it has got to be handled quickly, under proper conditions, and in many sections of the country in very severe weather. So that it has got to be done right, and in a short time. If all these importations were spread over the twelve months in the year, it would simplify the question, but they are not. All nursery stock has to be handled during its dormant season—not all nursery stock, but the majority of nursery stock.

Now, again, on that question of what its probable cost will be—

The CHAIRMAN. Pardon me, but in view of the short time we have to consider this matter, does it not occur to you that it would be better for you to let the committee have some information as to the

specific objections you may have to this bill rather than a discussion of the general policy which would be involved in the matter of the expense?

Mr. PITKIN. Well, Mr. Chairman, the plaintiff—if I may use that term—was given all day yesterday, about four hours, and you left for us this morning an hour and a half—

The CHAIRMAN. Oh, no; we will give you more time than that. I was only suggesting that you use the time to the best advantage.

Mr. PITKIN. I am getting very close to just exactly what you ask for.

The CHAIRMAN. I made that suggestion, as I thought, in your own interest, because the question of expense is a matter of policy, and does not go to the merits of the bill.

Mr. BEALL. I would like to hear him on the merits of the bill.

Mr. PITKIN. I brought up this question of expense because yesterday there were questions asked by the members of the committee about the matter of expense, and I was trying to give information on that line.

Mr. HAWLEY. The bill was taken up by the proponents of the measure, section by section, and their opinion given. If you could take it up in the same way we could compare the two statements.

Mr. PITKIN. I have only one other suggestion to make on that item of expense, and that is that, in my opinion, you will find that immediately the Federal Government begins to spend money in one State to bolster up a deficient state organization the other States are going to fall right in line and say: "I guess you had better take care of us." For certainly there is no good reason why New York should spend its money for doing work that the Federal Government pays for in New Jersey; and the New York department can use all the money they can get hold of taking care of other things.

Now, to get on to the objections that we have to this bill. There are objections to a number of the sections. Some have already been touched on. The principal objection that the nurserymen's associations have to this bill is in relation to section 8, I think it is, providing for a quarantine of a foreign district or country. And I want to tell you why.

Now, that section looks good; it looks fair; it looks reasonable to the man who does not understand the nursery conditions, and that is why it is so difficult for us to oppose it. We do not like to appear as opposing something that looks good. We firmly believe that we can not live and do business under that section. As I said, the importations are largely made up of these seedlings, which are our raw material. A great many of the nurserymen make their contracts in France nearly eighteen months in advance of the time of shipment, at which time the seed is purchased from which these seedlings are grown. The majority of the other contracts are made in France about six months before time of shipment, during May and June, the shipping time being in December and January and February. I assume that six months or eighteen months before time of shipment Doctor Howard would not say to us, "You are entirely safe in placing your contracts at a certain French district, or in France, because there will not be any trouble six months or eighteen months later." He could not do it. We have got to place our contracts at that time, and when the shipping time comes, along in the winter, and the Doctor decides

that the conditions over there are dangerous, he then says, "We will place a quarantine against the Angers district of France," or, "the entire country of France, and you can not bring in your raw material." If that quarantine were placed only against the Angers district, for example, it would be impossible in an average season to replace those contracts or orders in the free districts of France. The stock would not be available, as fully 90 per cent or 95 per cent of it is covered by contracts made a long time prior to the date of shipment.

Mr. STANLEY. How much capital is invested in this importing business?

Mr. PITKIN. I do not just get the scope of your question.

Mr. STANLEY. What is the capitalization of companies engaged in the importing business?

Mr. PITKIN. I have no list, and have never seen a list, of the nurserymen who import their stock direct from France. But, as I previously stated, practically all the nurserymen who are raising pears and plums and cherries and quinces import their raw material from France, and also a very large proportion of those that grow apples; and if a man does not import direct, he has got to depend on this same source of supply for his raw material, which although it does not come to him direct, comes to him through others, and it affects every nurseryman whether he imports directly or indirectly.

Mr. RUCKER. Then substantially all the capital invested in the nursery business in the United States is interested in the importations?

Mr. PITKIN. That is absolutely true.

The CHAIRMAN. It seems to me that one question in that connection is this: It is to be assumed that any federal law will be administered with ordinary common sense and prudence; it is to be assumed that no Secretary of Agriculture would quarantine against any district in Europe unless there existed there an insect or a disease, the importation of which was almost certain to follow the importation of any stock from that district, the importation of which would result in enormous damage to the country. Now, if such conditions did exist, if a certain district in Europe were infested with some insect, or infested with some disease which made the importation of nursery stock from that district a menace to the fruit industry or to the forests of this country, would it not be better for the country at large that the nurserymen or the fruit growers should suffer a temporary embarrassment, a small loss even, than that the whole country should be menaced? It seems to me to be a question simply of balancing one evil against the other.

Mr. STANLEY. The purpose I have in asking that question is somewhat answered by the explanation of the chairman, it being an unfortunate state of affairs that any business should be predicated for its life upon its license to import fruit trees or anything else from an infected district, and it would have to endanger an enormous amount of capital to affect the discretion of this committee in acting on this section.

The CHAIRMAN. In order to make my meaning a little clearer, Mr. McLaughlin, in an aside, has just called my attention to the condition that existed in Michigan recently when the entire State was quarantined by the Bureau of Animal Industry to prevent the spread of the foot and mouth disease. The people of that State were abso-

lutely forbidden to ship stock of any kind anywhere or to ship any hay or anything in the nature of forage or live stock, regardless of contracts that existed. It undoubtedly imposed a great embarrassment upon a great many people, and yet the people submitted to it because they realized that it was for the general good to prevent the spread of that very contagious disease. Now, I presume that the Secretary of Agriculture would never proceed to the extreme of quarantining against a district unless some such emergency existed as arose in connection with the foot and mouth disease in our own country. And if that emergency should exist, then I would like your opinion as to whether this section ought not to be in the law, so that the Secretary of Agriculture can protect the country.

Mr. PITKIN. It seems to me that that situation can be handled in some other way.

The CHAIRMAN. I would like to have your suggestions as to a better way.

Mr. PITKIN. Well, one way that occurs to us, this bill in section 2 provides that no nursery stock may be imported from anywhere by anybody without first obtaining a permit from the Department of Agriculture. I think Doctor Howard has stated that the main purpose of that section is so that the department might be enabled to get a record of every importation entering the United States, so that importation might be traced to ultimate destination and inspected; and that if he could do that he felt that he was pretty safe in being able to handle and control the situation. Now, if he can do that and can inspect these importations when they arrive, the bill gives him the power to destroy anything that can not be properly treated or disinfected. Why is it necessary then to go to the extreme measure of absolute prohibition against the importation of nursery stock from any district or any country when, as I have tried to show you, it means an immense loss to the very large nursery interests, and not alone to them, but it would affect the orchard interests as well, because if we can not get the raw material to grow fruit trees, we haven't them to sell the orchard men. Now, possibly the present orchard man who has a big orchard and everything running all right would like to be a monopolist and shut out the other people, but I do not believe he does.

Mr. McLAUGHLIN. Would you be in favor of giving the Secretary of Agriculture some discretion in the matter of granting these permits? The bill requires him to issue a permit on application regardless of the former conduct, you might say, of the person who applies for it. It makes it his duty to issue it, and it leaves it altogether up to him to follow the shipment after it comes in.

Mr. PITKIN. I assume that, under the conditions I have just suggested, that if Mr. Nurseryman sent an application to the Department of Agriculture for a permit to import white-pine seedlings, which we mentioned here yesterday, and Doctor Howard sent him the permit, and with it a little note to the effect that white-pine seedlings when they were brought into this country would be instantly destroyed, I assume that Mr. Nurseryman would immediately give up any idea of importing white-pine seedlings. As a matter of fact, I think you will agree with me that the trouble with white-pine seedlings is largely the importation for forestry and that for the nurseryman. I do not think any quantity of white-pine seedlings is imported by the nurseryman from Germany.

Mr. McLAUGHLIN. Do you think this law imposes any such duty as that upon this bureau, or would give the head of it any right to say in advance that such an importation would be destroyed?

Mr. PITKIN. I don't see anything improper about it under the other section.

Mr. McLAUGHLIN. Would you be willing for him to have that power?

Mr. PITKIN. I simply have called attention to that other section giving him that authority and assuming that the conditions were such that when that importation arrived it would probably be necessary to take radical measures. I think the law would authorize him to do that. If not, it would be easy to fix it so that it would.

Mr. HAWLEY. Suppose you made contracts, for instance, in the Orleans district, for \$50,000 worth of seedlings at the time when you make such contract, and at the time you were to import them that district was put under quarantine by the United States, would you be liable on those contracts to the French nurserymen for the amount of them?

Mr. PITKIN. That, of course, would depend largely on the form of the contract.

Mr. HAWLEY. That is what I wanted to know; the nature of your contracts with them.

Mr. PITKIN. I don't very much think any French nurserymen would accept a contract contingent on quarantine, because they are a pretty intelligent bunch of fellows. They don't have to sell these goods to America. Their market is the entire world. The whole world draws on France for its supply of this raw material, and any bill that affects that importation of raw material is affecting America more than it does France. I don't think you can make a contract there contingent on quarantine. And if we could it would simply relieve us of the monetary obligation, and that is a small part of the proposition. We are not arguing on the question of cost to the nurseryman. We are paying more for French seedlings, some of them, than we can buy them here; but we do not want to be put in the position where our entire supply of raw material can be shut out simply at the word of some one man in Washington.

Mr. STANLEY. You are in the face, then, of two evils. By this act you stop the importation of these white pine-seedlings; that is the effect of it; and without the act they will import white-pine seedlings that are infected with a deadly disease. Now, outside of the interest of the nurseryman, do you think it is better for this country that they should not have the right to import white-pine seedlings at all or that they should import white-pine seedlings which are infected with a deadly disease, which will destroy the imported stock and destroy the stock adjacent to it.

Mr. PITKIN. I think this white-pine seedling or anything else of that character, or anything that is affected by disease or an insect, which is not controllable by the ordinary means of inspection and treatment, should be immediately destroyed on arrival; but I do not believe you should pass a law that would put it into the power of any one man, as this would, to shut off our entire supply of raw material for our fruit trees simply on account, as it might be—I do not say it would, but it might be—on account of a trouble which would be as easily taken care of as the brown-tail moth has been during the past

two years. Under this law, if it had been in effect, Doctor Howard could have absolutely prohibited the importation of fruit-tree seedlings from France during the past two seasons.

The CHAIRMAN. May I suggest there, that to-day under another law we give the power to one man to quarantine against a foreign country as regards the admission of live stock, and one bureau or official did within a little more than a year quarantine five States of the Union against the movement of live stock, an industry which was equal to, if not greater than, the nursery industry of the country?

Mr. PITKIN. I am not disputing that.

The CHAIRMAN. If that power can safely be granted to a government official touching the live-stock industry of the country, would it be unreasonable to grant similar power to a government official touching the nursery industry?

Mr. PITKIN. Mr. Chairman, I am not disputing that proposition. It is true that such laws exist, but can you blame the nurserymen if they are reluctant to put their heads into a noose that might be tightened up some day, if it can be avoided?

The CHAIRMAN. If you can show us a better way we will be very glad to agree with you; but you have stated your objection to placing this great power in the hands of one government official, and I simply called your attention to these other laws to show that another industry, vastly greater in amount of money involved, has been willing to subject itself to such a law; and up to this time I have never heard any serious complaint about its having been improperly administered.

Mr. RUCKER. But, Mr. Chairman, the other question more seriously affects the health of the people of the United States, and besides, the diseases quarantined against frequently are harder of detection than a bug on a tree or bush would be.

The CHAIRMAN. That may be.

Mr. PITKIN. There is one thing you have to consider in relation to that, and that is that nursery stock can not be made in fifteen minutes or a day. It takes a long time to bring it on to the market from the original planting.

Mr. RUCKER. The same thing applies to a steer. A three-year-old steer can not be made in a day.

Mr. PITKIN. It takes longer than that in the case of a tree.

Mr. McLAUGHLIN. Mr. Pitkin, do you think the authority asked for by this bill, or the regulations to be imposed, are necessary in view of what has been said about diseases that are not discernible in nursery stock, some kind of disease that can not be found or distinguished without cutting a tree all to pieces, which in the ordinary course of events does not develop until some considerable time after it is set out?

Mr. PITKIN. Well, you can not guard against those troubles until after you find them.

Mr. McLAUGHLIN. But where it is known that they exist and a certain section of country from which you propose to import is infested with that trouble, do you think it is so serious or of such a nature that this authority or these regulations might be necessary?

Mr. PITKIN. The trouble with this quarantine provision is that it does not limit it to that certain case that you mention, but gives power to quarantine against an entire district and prohibit any importations from that district. It gives the power to do that, as I

read the law. Now, the kinds of trouble that you mention, of course, have got to be known before any action is taken. If Doctor Howard has his force of investigators in France and they discover that this trouble that you suggest affects a certain variety of nursery stock, he can make that knowledge known to the would-be importer, when he makes that application, and can say that under the law that would be destroyed when it gets in here. What we contend against, frankly, is that quarantine provision which leaves the power absolutely in the hands of some one man to shut off our supply of raw material.

Now, the chairman has brought up the point that other interests are affected in the same way and are controlled. Now, you may think that we are too particular on that point; that we are not warranted in our feeling of fear. But I think we are, and I will tell you why. In this bill of 1909 which passed the committee last year and passed the House and got out of the Senate committee, in the first place, the nurserymen who were largely interested in such things knew nothing of that bill until it had been reported favorably by the Senate committee. I think there had been a tacit understanding for a number of years among our friends, the entomologists and the nurserymen and the fruit growers, that we would all consult on legislation. We knew nothing of that. That bill contained the provision that every box of nursery stock coming into this country should be opened and inspected on the docks at New York port of entry and repacked and sent on to destination; and when we talked with Doctor Howard about it, he acknowledged it was wrong. He had no conception of the amount of stock to be handled and the difficulties in the way. It would have ruined the seedlings. Now, that action was taken without any consultation with the nursery interests and without a proper understanding of the conditions, and why shouldn't we look for trouble again?

Now they say they are not going to abuse this power if they get it, and yet Mr. Marlatt stated in his testimony yesterday that he was of the personal opinion that there should be absolute prohibition against importation of nursery stock, and I have understood that Mr. Marlatt has been selected to administer this bill if it is made a law.

Mr. MARLATT. I decline the job. You are perfectly safe.

Mr. PITKIN. It was so reported a year ago.

Mr. STANLEY. As I understand your argument, you argue that the enactment into law of section 8 of this bill would, as I understand you, destroy your business?

Mr. PITKIN. We fear that.

Mr. STANLEY. You think it is probable that it would?

Mr. PITKIN. We fear that it might some day.

Mr. STANLEY. Do I understand you to state that the existence of your business is, potentially at least, dependent upon the privilege of importing your raw material from districts known to be infected with contagious plant diseases or dangerous and troublesome insects?

Mr. PITKIN. I mean to say that to-day the nurserymen of the United States are dependent on France as the source of supply for their raw material of pears and cherries and plums and quinces, and a very large proportion of their apples, and their roses.

Mr. STANLEY. But that is not an answer to my question.

Mr. PITKIN. And you can not do a nursery business without that raw material.

Mr. STANLEY. Is all of France infected with these troublesome insects and these plant diseases?

Mr. PITKIN. I do not know. I think Doctor Howard could answer that question better than I could.

I was telling you some of the reasons we were afraid to put this power in the hands of one official. We still have that fear and we want you to figure out, if you can, some way in which this situation can be guarded without that. This present bill has never been in consultation face to face. We have had some correspondence about it, as I said before. I think if we could have met we could have smoothed out some of the difficulties, but we have never had the opportunity.

A year ago there was an order issued by the department, I believe by Doctor Howard, to the railroads running out of New York and to the steamship companies running into New York that they could not move a case of nursery stock. I think the law passed in 1905 was cited as authority, but I can not find in that law any authority for that action. And we have had a number of these cases, which make us afraid to put ourselves into a noose which may be drawn tight some day, and especially if one end of that is going to be held by our friend Mr. Marlatt. We want to keep out of it just as long as we can.

Twelve or fifteen years ago our entomologists told us that San Jose scale was going to make a whole world of trouble. If one-half of the prophecies which were then made had come true, there would not be a nursery or an orchard on the face of the map to-day. Now, the big fruit growers and the orchard men say that they think it was a blessing because it forced the orchard men to take care of their trees. It has resulted, though, in the employment of a large army of entomologists and inspectors.

Another reason why we are afraid of putting ourselves in the absolute power of a federal official.

The last tariff bill, in section 264, provides for duties on nursery stock, and section 668 of the free list includes evergreen seedlings—or, in other words, evergreen seedlings may be imported without payment of duty. Evergreen seedlings were placed in the free list at the request of the people of the United States Forestry Department, and against the wishes of the Nurserymen's Association. Notwithstanding the fact that the law plainly says that evergreen seedlings should be admitted free, certain customs officials at a conference in New York City decided that evergreen seedlings should be taxed under section 264, and have collected and are collecting duties on such shipments. The nurserymen who understand the matter have paid duties under protest; possibly they may get their money back, but those that have not understood the situation have undoubtedly paid in the usual way, and their money is gone, and, as we look at it, without any shadow of warrant of law.

We have within a year had another experience which weakens our faith in the infallibility and good judgment of scientific men, and it is upon some scientific man that, no doubt, would rest the responsibility of deciding when the discretionary powers granted by this bill are to be used. Brown-tail moth nests were found on nursery stock in the winter of 1909, and first in New York State and on the

premises of the nursery company with which the speaker is connected. It was our foreman who discovered the trouble and reported it to the speaker, who at once communicated with the proper people. The commissioner of agriculture at Albany immediately called in consultation nurserymen and fruit growers, who discussed ways and means of controlling the situation. We found that the commissioner had been advised in the strongest possible terms by the late Professor Slingerland, of Cornell University, an entomologist of recognized high standing, to fumigate with hydro-cyanic acid gas every seedling coming from abroad. The nurserymen present protested strongly against this action, because we thought that it would seriously injure the seedlings, and we were fortunately able to convince the commissioner of agriculture that fumigation was unnecessary and that thorough protection could be secured in other ways. Within a few days after that I know that a quantity of seedlings infested with the nests of brown-tail moth were thoroughly fumigated, according to scientific formulas, by an official inspector of the New York state department, and after the fumigation was concluded I personally saw that it did not kill the caterpillars in the nest, but they were as lively as ever. Had the advice of Professor Slingerland been accepted by the commissioner, the seedlings would have been injured by fumigation and the nests would not have been destroyed. Can you blame us for being reluctant to do business under the absolute control of department officials?

In concluding my argument on this point, I wish to mention a still more outrageous case, although not one in which a United States official had a part. For many years previous to 1898 the company of which I am an officer enjoyed a very large trade in Canada. Early in 1897 it was rumored that Canada might decide to prohibit the importation of United States nursery stock. Early in that year I had an interview with the Canadian minister of agriculture at Ottawa, and said to him, in substance, that we were about to start in on our year's business campaign, that in the usual order of business it would mean an outlay of about \$40,000 between that date and the time of shipping our goods in the spring of 1898; that we had heard it rumored that American nursery stock might be excluded from Canada on account of the alleged danger from San José scale; and that if there were any likelihood of such action being taken, that I would appreciate it very much if he would say so at that time, and that we would have no criticism to make, but would refrain from trying to do any Canadian business, and that the main point was that we did not wish to go ahead and expend \$40,000 and then find at the end of the season that we could not deliver our goods. I received such assurances as warranted us in going ahead with our business as usual.

In the spring of 1898, about a week or ten days before our shipments were to begin, the Canadian minister of agriculture under the authority of an "Order in Council," absolutely prohibited the importation of American nursery stock. Our trees and plants for filling Canadian orders were all dug, some of them were packed in boxes, and everything was ready for shipment within the following ten days. I personally went to Ottawa, interviewed the minister, told him that there was no San José scale in the nursery district of

western New York at that time, that all of our goods had received thorough state inspection, and we believed them to be absolutely clean and healthy. I suggested to him that he send his own force of inspectors to Rochester, and that we would give him opportunity to thoroughly inspect every tree and plant, and that they could be fumigated if he so wished, and offered to pay the entire expense of such operation, but he refused to make any arrangement whatsoever. We were obliged to arrange with Canadian nurserymen to fill our orders in Canada, and the nursery stock and material which we had ready in Rochester was thrown on the market at the last end of the season. We sold as much as we could, burned up the rest of it, and suffered a very serious loss in consequence. I think Doctor Howard will bear me out in saying that the condition of the western New York nurseries at that time did not warrant such action by the Canadian minister, and that his action was governed not by desire to protect Canadian interests, but solely by political reasons. Can you blame us if we do not have implicit faith in the infallibility, good judgment, and good faith of every department or bureau official?

Doctor Howard and his witnesses ask us to consent to the granting of very large discretionary powers by this bill, and promise that such powers shall not be abused. In view of our experiences as outlined, can you wonder that we are afraid and reluctant to place ourselves in the power granted by this bill? Frankly, we are afraid of the future.

MR. MARLATT. You were fortunate in finding a remedy.

MR. PITKIN. I was asked yesterday by one of the Members, who said he had heard a reference to a bill drawn up by the nurserymen, and I agreed to submit it. I want you to understand that this bill was not drawn by the nurserymen in a desire to secure legislation. It followed a conference with Chairman Scott and Doctor Howard, in the winter of 1909, at which time your chairman made the suggestion that the bill then pending should be dropped, and that the different interests should try and get together during the recess and frame a bill. At the request of Doctor Howard the nurserymen framed a bill and submitted it to him for his consideration, under his promise that he would meet with us and look it over. We have never been able to meet. This copy which I have is the bill which was submitted to Doctor Howard at that time, with one amendment which was inserted in December at the request of the Association of Horticultural Inspectors, who had their annual convention in Boston, being a national organization made up of the representatives of the various state departments. This bill, in its present form, had the indorsement of that organization, and our friends, Mr. Smith and Mr. Phillips, who appeared here yesterday, were at that meeting and participated in the discussion. This bill also has the indorsement of the legislative committee of the American Pomological Society, the great parent fruit organization of the country. It had the careful consideration and indorsement of the American Association of Nurserymen. As I said, it was not prepared by us to urge legislation, but prepared at the request of Doctor Howard, and if you wish, I shall be glad to submit a copy of that bill.

The CHAIRMAN. Please do so.

(The bill referred to is as follows:)

AN ACT To provide for the inspection of nursery stock and to authorize the Secretary of Agriculture to establish a quarantine against the transportation in interstate commerce of diseased nursery stock or nursery stock infested with injurious insects, and making an appropriation to carry the same into effect.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all nursery stock brought into the United States, including field-grown florists' stock, trees, shrubs, plants, vines, cuttings, grafts, scions, buds, pits, or seeds of fruit and ornamental trees and shrubs, shall be subject to inspection by official experts of the Department of Agriculture at final destination on the premises of the owner or consignee, except that shipments of less than one thousand trees, shrubs, plants, vines, cuttings, grafts, scions, or buds may be inspected at the port of entry.

SEC. 2. That it shall be unlawful for any transportation company, person, or persons, after July first, nineteen hundred and ten, to offer for entry at any port in the United States any nursery stock, including field-grown florists' stock, trees, shrubs, plants, vines, cuttings, grafts, scions, buds, pits, or seeds of fruit and ornamental trees and shrubs, unless accompanied by a certificate of inspection by an official expert of the country from which the importation is made, which certificate shall be made in the manner and form prescribed by the Secretary of Agriculture, certifying that the contents have been examined and found to be apparently free from all dangerously injurious insect pests or plant diseases.

SEC. 3. That any transportation company, person, or persons who shall receive, bring, or cause to be brought into the United States any nursery stock, including field-grown florists' stock, trees, shrubs, plants, vines, cuttings, grafts, scions, buds, pits, or seeds of fruit and ornamental trees and shrubs, shall, within twenty-four hours after the arrival thereof, notify the official expert of their arrival and delivery to consignee. The official expert or his representative is hereby authorized and empowered to enter into any warehouse or premises of consignee or owner where such nursery stock or other described articles are received for the purpose of making the inspection or examination herein provided for, and such examination shall be made within five days from such arrival thereof.

SEC. 4. That each case, box, package, crate, bale, or bundle of nursery stock, including field-grown florists' stock, trees, shrubs, plants, vines, cuttings, grafts, scions, buds, pits, or seeds of fruit and ornamental trees and shrubs, imported or brought into the United States shall have plainly and legibly marked thereon the name and address of the shipper, owner, or person forwarding or shipping the same, and also the name and address of the person, firm, or corporation to whom the same is forwarded or shipped, or his or its responsible agent.

SEC. 5. That when any shipment of nursery stock, including field-grown florists' stock, trees, plants, vines, cuttings, and shrubs, imported or brought into the United States is found infested with injurious insects or their eggs, larvæ, or pupæ, or with tree, plant, or fruit disease or diseases, the contents of boxes or bales so infested or diseased may be disinfected at final destination on the premises of the owner or consignee, under the supervision of the official expert. After disinfection has been so performed in a manner satisfactory to the official expert, the trees, vines, or other articles shall then be released. If it be not practicable to fully disinfect such stock, such portion of it as shall be infested shall be destroyed.

SEC. 6. That upon complaint or reasonable ground on the part of the Secretary of Agriculture to believe that any nursery stock, including field-grown florists' stock, trees, shrubs, plants, vines, cuttings, grafts, scions, buds, pits, or seeds of fruit and ornamental trees and shrubs grown within the United States, are infested with injurious insects or diseases new to the United States and likely to become subjects of interstate commerce, the Secretary of Agriculture shall cause the same to be inspected by a qualified expert, and, if need be, the trees or plants found infested shall be placed under quarantine until such infestation is removed.

SEC. 7. That it shall be unlawful for any person, persons, or corporation to deliver to any other person, persons, or corporation, or to the postal service of the United States (except for scientific purposes, and by permission of the Secretary of Agriculture) for transportation from one State or Territory or the District of Columbia to any other State or Territory or the District of Columbia, or for exportation to any foreign country, any trees, plants, shrubs, vines, or other nursery stock which are under quarantine in accordance with the provisions of section six of this act. Any person, persons, firm, or corporation who shall in any way violate the provisions of this act, shall be deemed guilty of a misdemeanor, and on a conviction thereof shall be punished by a fine not exceeding five hundred dollars nor less than two hundred dollars or by imprisonment not to exceed one year, or both, at the discretion of the court.

SEC. 8. The Secretary of Agriculture may, at any time, extend the provisions of this act to fruits, vegetables, bulbs, or seeds not specified in this act, and imported from foreign countries, whenever he shall deem such action necessary to prevent the entry with such products of dangerous insects or plant diseases, and if the provisions of this act be so extended, such inspection of fruits, vegetables, bulbs, or seeds may be made at the port of entry.

SEC. 9. That the rules and regulations herein provided for shall be promulgated on or before the first day of June each year.

SEC. 10. That the sum of — dollars, to be available on the — day of —, nineteen hundred and —, or so much thereof as may be necessary, is hereby appropriated, out of any moneys in the Treasury of the United States not otherwise appropriated, to carry into effect the provisions of this act.

SEC. 11. That this act shall take effect on and after the — day of —, nineteen hundred and —.

SEC. 12. That the provisions of this act shall not prevent the inspection of any nursery stock or other described articles by the authorized inspector of any State or Territory, at the final point of destination, in accordance with the laws of such State or Territory.

MR. PITKIN. Simply in conclusion, gentlemen, we want you to be thoroughly impressed with the idea that we are not opposing safe and sane and practical legislation; and that is borne out by our course in reference to the various state laws which we have backed up and cooperated with in every possible way. But we want this legislation made in a way that we can do business, and if we can avoid it and if you can avoid it, we would like to have it shaped so that the supply of our raw material does not absolutely depend on the word of some one man, and we believe it can be done and we think we have shown you one way at least in which it can be done.

THE CHAIRMAN. It would seem that the interests of the nurserymen and fruit growers and of the country generally all lie along the same direction, and it was because that was so obvious that I took the liberty last year of suggesting that those interests try to get together. I regret very much you have not had an opportunity for a personal consultation, and following the suggestion of Mr. Hawley, I am sure the committee would be very much pleased if you gentlemen would take advantage of the recess this afternoon to talk things over together. I hope that Doctor Howard and Mr. Marlatt, Mr. Pitkin, and others can spend a little time together.

MR. PITKIN. I did not hear that suggestion. Was that the substance of it?

THE CHAIRMAN. That was the substance of it.

MR. RUCKER. I would suggest that we tender the gentlemen the use of this room for that purpose.

THE CHAIRMAN. We would be very glad to do that. Without objection, the committee will now adjourn until 8 o'clock this evening. As many as can come are urgently requested to be present.

MR. PITKIN. Mr. Chairman, I am very much obliged to you and the committee for your attention.

EVENING SESSION.

The committee met at 8 o'clock p. m., Hon. Charles F. Scott (chairman) presiding.

THE CHAIRMAN. Mr. H. R. Stewart, director of the Experiment Station of West Virginia, is present and would like to address the committee briefly in the interest of the orchardists of the country, who have been watching the progress of this legislation, and I am sure we will be glad to know what their views are.

STATEMENT OF MR. H. R. STEWART, DIRECTOR OF THE AGRICULTURAL EXPERIMENT STATION OF WEST VIRGINIA.

Mr. STEWART. Mr. Chairman and gentlemen of the committee, some time ago the orchard inspector—the nursery inspector of Maryland, published a little bulletin in which he informed us that in the inspection of a nursery in his State he had found some hundreds of the nests of the brown-tail moth. Previously to that we had expended a good deal of effort and much of the little money that we had, in an effort to make our lands more valuable in fruit growing. We had brought that to a considerable success. Some of us were making some money and some of us were yet spending money in hopes.

When we got this intelligence from this gentleman, so near the sea, that this tremendously dangerous and destructive thing had got into Maryland, just across the Potomac River from us, we were wonderfully alarmed. Men were making contracts for a large number of trees, for clearing land, and for new orchards in West Virginia, and when they got this it served to check our business and to a certain extent it alarmed everyone interested in it. Because of our ignorance of the facts and the law, being farmers, we came down to ask the Secretary of Agriculture if there was not something that he could do, with the strong arm of the Government, some way or other to help us, to quiet this alarm and make us feel easy for the future. He said there was no legislation, no power, no authority, although he thought there ought to be. It turned out that there had been legislation contemplated, that it had been discussed by the various associations interested in this subject, and we asked a Member of the House of Representatives from our State if he would not prepare a bill and see if something could not be done to help us out.

Now, in regard to the bill which is pending, to which our attention was called by him—the Senate bill—technically and from a legal standpoint and from the entomological standpoint we do not want to talk, so much as from the standpoint of the fellow that buys the trees from the nurseryman. We do know from experience that the State with its machinery and its laws is unable to give us all the protection that we think we ought to have. Let me give you an instance. Recently a large nurseryman, represented here this afternoon, sold a large number of trees, I think two carloads, to an orchard company in West Virginia. A part of those, it turned out, were not grown in the State where this nurseryman has his principal place of business; they were grown in another State right next to West Virginia, right across the line. On examination of these trees by the entomologist from our experiment station, at the request of the orchard company, it was found that 12,000 of those trees were infested with San Jose scale, and that they were alive, many of them. Now, they came into West Virginia with a certificate. They were sold and contracted by a very responsible company, of which I am sure Mr. Ruffin must know, but they were not grown in his State. He knew nothing about them except by the contract; I have not any idea that he ever saw them. We could not prevent them from getting into West Virginia, but we could compel them to take those trees out. They were sold by a large company who were good

business men, and a company made up of men engaged largely in coal manufacturing, not the largest company, but one of the coal companies of the United States, expert, active, business men. They knew how to go about some sort of protection. But this same company sells to thousands of our people in little batches of 10 trees to 100 trees, and various sorts of shrubs and things. I do not speak of it out of any ill will to this company, because it is made up of excellent gentlemen, and I have no doubt that they intend to give our people just what they ought to have. That is one example.

Now, if this browntail moth, the entomologists tell me, should get into the Potomac Valley here, it could fly right over into West Virginia, and no law or power on earth could prevent it; and if a nurseryman down here should have it, he could send it over there, or if somebody here should buy a little batch of trees and stick them under his arm and go across the river here with them, there is nothing to prevent that; and how are we going to keep those things out? What we want and what we ask of this committee and Congress is that it will empower somebody—we believe that the Secretary of Agriculture, for many reasons, is the best of all—to look over all these things that are shipped into the United States. If they are all right, let them come in; if they are wrong, keep them out. It will cost us so much less.

The remark was made to-day that \$25,000 was a considerable sum of money. Why, we have hundreds of orchards in West Virginia the destruction of which would mean many times more than that. We have companies there engaged in the orchard business so extensively that they count their trees not by hundreds but by thousands and tens of thousands, and some of them by hundreds of thousands, and we feel that the orchard business in West Virginia is only fairly begun. Our lands have proven so fitted to it, and the climate is so agreeable, that we have become quite "chesty."

Mr. LAMB. I have been up there and seen your orchards.

Mr. STEWART. We feel that we have grown about as good apples as anybody else in the United States, if not better than anybody else, and the peaches which we grow are fine in quantity and quality—unexcelled, we think, by any grown in America.

Mr. Chairman, we do not want to be checked in this growth. We do not want to be injured in what we have already invested. Of course we do not want to be protected at the expense of the nurseryman; we do not want him hurt. He is our servant, you understand; he is growing trees for us; he is in some measure our agent. But we want him controlled to the extent, and guided to the extent, of delivering us what we buy in good, healthy condition, because the little, trifling sum which we pay him for a tree is negligible when compared to the expense to which we are put in growing that tree to the age when it would bear fruit and become profitable. The price of a tree is nothing, I say, compared to the disappointment which would come to us if that tree should die of the crown gall or the yellows, or by the San Jose scale, or should be eaten up by the browntail moth or some other one of the many things that seem to be lying in wait for it. The San Jose scale has been referred to as a blessing, and in one sense it may have been a blessing, possibly, although a very expensive one. It has put the owners of trees to the

necessity of activity and study and practice in controlling it, and while they were at that, they learned that they could successfully control other enemies of their orchards, and so probably in an indirect way it has been a blessing. But as I say, Mr. Chairman, it has been a very expensive one, and will be as long as men live in America.

The CHAIRMAN. I think Mr. Gordon Lee, of Georgia, and other men who were present here this morning would probably say to the committee what he said to me, that he is just now cutting down an orchard of something over 6,000 trees on account of the ravages of the San Jose scale.

Mr. STEWART. Yes, sir. You go just a little ways up here, two hours' run, into West Virginia, and you will see it before you get into West Virginia.

Mr. LAMB. The San Jose scale is in Jefferson and Hardy counties.

Mr. STEWART. Yes; and in Berkeley, where they think they grow the best apples on earth, and I expect they are pretty near right.

Mr. RUCKER. That is, you mean by comparison of your State with Captain Lamb's State, I take it.

Mr. STEWART. We feel rather close akin in many ways. Just to give you an idea how much this is, we think, that we represent here, at one shipping station in the Potomac Valley in West Virginia during the latter part of the winter, in the early part of December, and this spring, for spring planting, there were delivered more than a million peach and apple trees. In a recent controversy the Baltimore and Ohio Railroad, which by a fire had destroyed some trees and fences, and so forth, settled with one of our people, very cheerfully it is said, at \$10 a tree for 6-year-old apple trees. It would not take long at that rate for the people who buy these trees to settle up and pay off the debt between Virginia and West Virginia, would it?

Mr. LAMB. No.

Mr. HAWLEY. Those trees you speak of, did they come from some other State in the Union into West Virginia?

Mr. STEWART. Oh, yes; we got them from Utah and Maryland.

Mr. HAWLEY. As I understand, the present bill only applies to foreign importations.

Mr. STEWART. Yes. Now, the point is this: We are in it; we have got our money in this business. We buy from the nurseryman. Say that he is right across the District line here in Maryland, or over in Virginia, or in Tennessee; there is a big nursery over there that we have had considerable business with. Suppose that man imports a lot of trees and he brings them in at some place, Norfolk or Baltimore of New York. We are away up there in the mountains, and we do not know anything about when those things get here, and we have no power over them at all, and we know nothing about it. He buys them and gets them in, and they may have all sorts of diseases or insects. We want somebody who is competent and reliable to look them over before that nurseryman gets them, because we have found out in our experience, notwithstanding the excellence of the gentlemen engaged in the nursery business, that sometimes, through negligence of their underlings, of their employees, things get into our State that ought not to get in there and ought not to be sold. Just recently, over in Worcester(?) County, the lower end, a number of suits were brought by a big nurseryman who is up on the line between our State and Tennessee; I think Bristol is their headquarters. He

sued our people on contract for those trees, and those trees were badly infected with a disease known as crown gall. The Chief Pathologist of the United States Department of Agriculture, Dr. Erwin F. Smith, who I expect is the best authority in America on such subjects, said that that was a dangerous disease, that it was infectious and contagious, and liable to spread from that farm to another, and that the trees infected with it were worse than worthless; and, turning on what he said about it, a number of nonsuits were taken, and subsequently judgment against the plaintiff was taken, etc.

Gentlemen, I am not going to take up your time. We do not want to hurt anybody and we do not want the trees held up, but if there is any doubt about a tree, why not hold it up? If the United States would say, "You can not deliver a thing in here unless it is clean," then a certificate from the French would mean something. It would be like the effect of a standing army; you would not have to inspect them so much, because they would know they were constantly in danger of having their stuff rejected and thrown away at their expense.

Mr. LAMB. They would not send them?

Mr. STEWART. They would not send them over here. If they knew that Secretary Wilson and some of his excellent corps of men were liable to send that back and reject it, or to condemn the region in which they were growing it as dangerous, they would not send it; they would not send anything here that was not free, clean, and clear according to their contract. And besides that, if we did not get them from there, our people could grow them. There are people here that will tell you that the finest trees we have never saw France; that they were grown from seeds that were themselves grown in West Virginia—dandy trees, excellent—which produced last year more than \$50 worth of fruit each.

Mr. LAMB. We are in the same latitude, have the same climate, and, in the name of common sense, why can we not make a seedling as well as they can?

Mr. STEWART. I understand some of the nurserymen say, in defense of their attitude on this, that the trees grown in France are more vigorous, and it is not a labor question, but it is a question of conditions. But, notwithstanding that, we would rather take good United States trees that were free than to take any chances on the browntail moth or any other thing that was so dangerous as that. This thing does not touch fruit trees alone, Mr. Chairman. If that pest were in here, it would destroy our forests and our beautiful shade trees; and every lover of a tree in the country will hail with delight the intelligence that you have put an additional barrier around us by an act which protects and shields them against possible loss.

Mr. RUCKER. I would like to ask you a question or two, if you will be so kind as to answer them.

Mr. STEWART. Certainly.

Mr. RUCKER. You spoke of the orchards of West Virginia, I believe, some of them containing hundreds of thousands of trees?

Mr. STEWART. Yes.

Mr. RUCKER. What kind of orchards are those large ones?

Mr. STEWART. Some of them are peach orchards and some of them are apple orchards. I am going to introduce to you a gentleman who represents one of those companies, a sort of consolidation.

Mr. RUCKER. I want to ask you one or two questions, if you can answer them and if you are willing to do so.

Mr. STEWART. Sure; I will try to.

Mr. RUCKER. West Virginia is a great fruit State?

Mr. STEWART. Yes.

Mr. RUCKER. I have some pride in the State and share it with you.

Mr. STEWART. Yes.

Mr. RUCKER. Is it chiefly a peach or an apple growing State?

Mr. STEWART. Both.

Mr. RUCKER. In what proportions are those fruits grown there—apples and peaches?

Mr. STEWART. The principal peach growing is confined to the Potomac Valley, the counties of Mineral, Hampshire, Hardy, Morgan, Berkeley, and Jefferson. Berkeley and Jefferson are more particularly apple-growing counties now.

Mr. RUCKER. You say they are the principal apple-growing counties?

Mr. STEWART. They are peach growing.

Mr. RUCKER. Where is the largest apple crop grown?

Mr. STEWART. We speak of it as the eastern panhandle and the northern panhandle, where the apple growing is more highly developed than in any other portion of the State.

Mr. RUCKER. Could you give us an estimate as to what the proportion is as between the apple crop and the peach crop; whether it is one-half or two-thirds of one or the other?

Mr. STEWART. I think the apples are decidedly in excess of peaches, in the number of trees.

Mr. RUCKER. I was asking for information. I thought it was just the reverse. I did not know.

Mr. STEWART. No; I do not think it is. Everybody has apple trees, and only a few of them have peach trees.

Mr. LAMB. When I was in Hampshire, they were cutting down everything on top of the mountains and putting orchards up there.

Mr. STEWART. Yes.

Mr. LAMB. They know what is good for them; and West Virginia would be the richest State in the nation if they had done that a long time ago.

Mr. STEWART. We are doing what we can now.

Mr. RUCKER. I know you are, and it is a very commendable enterprise and I noticed it with pleasure and pride. You said that the largest proportion of the apple trees in your State are set out from seedlings grown in the State of West Virginia?

Mr. STEWART. No; I think you are mistaken on that.

Mr. RUCKER. That is what I understood you to say.

Mr. STEWART. I say that some are home grown. No; I did not make that statement. But really I do not know, myself, and I do not think anybody knows, where we buy most of our trees. We have some twenty-odd nurserymen, some of them of considerable pretensions. The others are small, weak companies, young enterprises, that grow trees. We buy all they grow, and then we buy from Utah and Ohio and Missouri and everywhere else we can get them.

Mr. RUCKER. If you keep on you will have good fruit there.

Mr. STEWART. And from Maryland we get a good many of them.

Mr. RUCKER. That is a good place, too.

Mr. HOWELL. I knew that the people of Utah exported a good many trees, but I was not aware that they exported them to West Virginia.

Mr. STEWART. Yes, sir.

Mr. HOWELL. Is there any way by which a buyer could be sure that he gets a particular variety ordered from a nursery?

Mr. STEWART. In regard to apple trees, you take one of these gentlemen sitting here, and he will almost certainly tell you what variety it is on looking at it, when it is at the age to be set out. I could not tell, and I doubt whether you could; but he could tell a Ben Davis from a Rome Beauty with almost absolute certainty.

Mr. HOWELL. A great many people have orchards who are not experts. They simply give an order for trees, and when the trees arrive they have no assurance that they have the particular variety they ordered.

Mr. STEWART. I think it is largely a matter of trust. You take the contract of that man who sells the trees, and he ought to be a good man and he ought to be trusted; and then he ought to be controlled.

Mr. RUCKER. In recent years in the northern part of West Virginia I know there has been a great deal of attention paid to the culture and planting of orchards.

Mr. STEWART. Yes.

Mr. RUCKER. Where is the stock from which they are planted generally raised, do you know?

Mr. STEWART. It comes from all these States that I have mentioned.

Mr. RUCKER. Yes.

Mr. STEWART. I know one gentleman told me that he had gotten a magnificent lot of trees from Utah. They were grown, I think, down somewhere near Salt Lake City.

Mr. RUCKER. Most of the peach trees you get in this country? The peach is native here, is it not?

Mr. STEWART. No, I understand they do not import anything of that sort—any peaches.

Mr. RUCKER. You spoke of something—what was that, some kind of scale?

Doctor HOWARD. The San Jose scale?

Mr. RUCKER. Yes. Where does that come from?

Mr. STEWART. That got its name because it was first noticed near the city of San Jose. I understand they resent its being called by that name out there, and very properly so; they are not guilty. It came here from South America, and from there the entomologists tell me, I believe, that it is traced back to some place over about China—somewhere in China. Mr. Marlatt has been there and knows all about it. He has hunted it up.

Mr. RUCKER. It is the same thing that is called over there the Chinese scale?

Mr. STEWART. I really do not know, but I know this thing is a pernicious thing and very prolific. It is a little bit of a louse, that I can not see; you might.

Mr. RUCKER. I understand that you are representing the fruit grower, the orchardist, not the importer, and what you ask is something that may protect your orchards now growing and that will hereafter be planted?

Mr. STEWART. Yes.

Mr. RUCKER. You think the States do not furnish you adequate protection?

Mr. STEWART. No, sir; they can not. We have no control over shipments by ships from abroad over here. We are up there in the mountains and remote from the seashore and without authority and without power. Now, we want the United States Government to keep everything out of the country that is bad, and we will wrestle with what is in here. There is enough in here now; all sorts of diseases.

Mr. RUCKER. It has been discussed whether the State can do it or not. I was just trying to get your views about it.

Mr. STEWART. Yes, sir.

Mr. RUCKER. Suppose, under state regulations, a shipment from abroad, from France, for instance, should be made to Morgantown W. Va., to you?

Mr. STEWART. Yes.

Mr. RUCKER. And the state inspector, a competent man, should come there and examine that nursery and examine that shipment of seedlings; would not that act give all the protection that the Government could give?

Mr. STEWART. Well, it might, and it might not.

Mr. RUCKER. Do you not think it would?

Mr. STEWART. Yes, I think it would.

Mr. RUCKER. In other words, what difference would it make whether the shipment was inspected on the wharf at New York (where it hardly could be done) or inspected in Morgantown, in the original case, before it had been broken open?

Mr. STEWART. It would not make any difference. I think, if you will send all those things up to Morgantown, I will guarantee that the browntail moth will not get out.

Mr. RUCKER. I believe that, I am sure.

Mr. STEWART. But they will not send them all up there.

Mr. RUCKER. Yes.

Mr. STEWART. They send them down here, and then a lot of nurserymen and importers get them, and the nurserymen start and send them all over the country.

Mr. RUCKER. Is not that apprehension of yours born of the feeling that no other State is going to be just as careful as your State? Assuming that other gentlemen in other States would be just as diligent as you, could not the same precautions be used in other States, so that the States could control this matter just as well as the Federal Government?

Mr. STEWART. Now, let us see about that.

Mr. RUCKER. I am asking you simply for information.

Mr. STEWART. No, sir; I do not think so; for this reason: New York does not employ its men to look after our interests. Their duty is to look after shipments to New York State and to citizens of New York. The same may be said of Maryland or Virginia or any other place where there is a port of entry. When those things land at what, if we had it in West Virginia, we would call the wharf, they can run them right over to the Baltimore and Ohio train, and away they go; and there they are, in a few hours, and nobody has looked at them. Then some man gets some of the things and carries them away to wherever he may be going, and the first thing you know here is the

gypsy or the brown-tail moth. I went to Boston last winter; I went up there for curiosity, and somebody said in my hearing, "Have you any brown-tail moths up in New Hampshire?" mentioning some place in New Hampshire; and the other man says, "Yes." He said, "My observation has been that there are a great many patches of it that keep on being disclosed." Somebody said, "Oh, there is no gypsy moth up in my region." Directly somebody else said, "It is my opinion that every place up in there where a Massachusetts Yankee has been you will find a gypsy moth." I do not know how true that was.

Mr. RUCKER. Coming back to New York, and your last remark about this being in New York, if an importation is inspected by an inspector there and found to be absolutely free from any infestation of insects and free from disease, or if any disease or insect is found, if it is fumigated so as to make it pure and free from them, and those trees are then shipped to West Virginia, that would not hurt anybody, would it?

Mr. STEWART. No; if they were properly inspected and treated it would be prevented.

Mr. RUCKER. That is the question I asked you, if a rigid state inspection should be had——

Mr. STEWART. No, sir; I do not think so.

Mr. RUCKER. Hold on, there; let me give you my question before you answer it.

Mr. STEWART. I do not believe there would be any such rigid state inspection. Now, let me give you an example of that. The State of New York has officers in charge of the inspection of such things, and they have been keeping an exceptionally wide-awake oversight over importations, and we have had in West Virginia, as doubtless other States have had, notice that there was an importation of seedling pines, or of apples, or something else coming into the State. They have the record down there in New York City. We notify the nurserymen in our State to whom they are shipped that we want to take a look at that before they take that package apart. Now, if it should happen that they did not notify us in West Virginia, or somebody in authority in Virginia or Maryland or some other State, whatever State it might be to which this shipment was made, who is going to inspect that? The New York inspector has no authority over shipments that go into Maryland, and it is none of his business. He has no authority and could not have any authority in that State, as I understand it.

Mr. RUCKER. If that remark should be made about some of my friends in West Virginia, I should feel like resenting it, and I feel like it is pardonable and proper for me to resent it, a little bit, from New York. Is it not possible that a man holding a state office might have as much incentive and be as much stimulated, being an honest man, to perform and discharge a public duty faithfully, and is not that man just as competent to do that as if he was acting under the federal authority?

Mr. STEWART. Oh, I think so.

Mr. RUCKER. Do you think that men who work for the States are less honest than those that work for the Federal Government?

Mr. COCKS. I want to call the attention of the gentleman from Missouri to the fact that the New York inspector has no business inspecting that stock that goes into any other State except his own.

Mr. RUCKER. I want to call the attention of the gentleman from New York to the fact that that is not what I am talking about.

Mr. COCKS. He has no authority to do that.

Mr. RUCKER. But I say that is not what I am talking about. I want to say this to the gentleman, that I think every gentleman from the Agricultural Department who has been asked about that here says they have splendid inspection in New York.

Mr. STEWART. We have no doubt of that, but they do not inspect the things that are shipped through; shipped to our nurseries. They do not inspect things coming into the port of New York consigned to another State.

Mr. COCKS. Oh, certainly.

Mr. RUCKER. Oh, no; I say shipments to a nurseryman in New York; and whenever inspection is made and it is found to be free from disease and insects then it is all right to go on.

Mr. COCKS. That would not be true of a shipment to Maryland.

Mr. STEWART. But with the shipment to Maryland the same principle would apply, if the gentlemen in Maryland would make a careful examination of it and ship it to Oregon or to West Virginia.

Mr. RUCKER. The point I am making is this: That the state officials operating under the state law can be just as efficient and just as honest as the officials operating under the national law. I can not see the difference. I am not reflecting on either side. Both, I take it, are honest and efficient.

Mr. STEWART. I do not raise any question at all as to that. I was misunderstood, if what I said was so construed, that there was any lack of competency or willingness on the part of the inspectors in any of these States. I do not know that any of these inspectors are incompetent to know the brown-tail moth, or a nest of it, if he saw it. I do not know of an inspector anywhere, except one, and he is not on the seaboard, that I would question as to his willingness or his integrity in the matter; but the point about it, Mr. Rucker, is—you are a lawyer and I am a farmer, but it seems there is a lack of authority.

Mr. RUCKER. I know.

Mr. STEWART. We are all split up in little bits of pieces, each confined to our own State, depending on the whim and the caprice of our state legislature, with no two laws alike; and any traveling man can go down into Maryland and buy a bunch of these trees and go over into West Virginia with them, and there is no power to stop him; he has a perfect right to carry it up on the train with him, and we do not know when he gets it. He does not tell us; he buys trees and has them shipped to him directly, and unless we have some intelligence more or less accidental, he gets them in there and plants them. He is just as apt to bring that in which we do not want, as the man with a great big orchard; even more apt to do so.

Mr. RUCKER. Let me ask you the same question, practically, in a different form. This is to get your judgment on it.

Mr. STEWART. Yes.

Mr. RUCKER. Suppose the States in the Union should adopt adequate regulations and make adequate appropriations to carry that legislation into effect, and appoint suitable and honest agents to execute the law, would that give protection or not?

Mr. STEWART. No, sir; I do not think it would.

Mr. RUCKER. You do not think it would?

Mr. STEWART. No, sir. There ought to be somebody—and no State can give that authority to somebody—to stand at the gate and see these things as they come in and stop them until they look them over. It may be that I am mistaken about that, but I understand that no State can interfere with shipments that pass through that State going on to some other State. I do not understand the authority for that.

Mr. LAMB. This is all interstate business.

Mr. RUCKER. It is not interstate business. It is delivered after it gets into Virginia and West Virginia.

Mr. LAMB. Yes; but the Government ought to have control of importations; it is bound to.

Mr. RUCKER. I was trying to see if there was any authority left in the States yet, any activity that might be employed, that might be brought to bear so that we might feel justified in electing a township constable any longer, or must have a deputy from Washington to run our business. It looks to me like it is going to pretty near that extent. In a few years more we will not have much use for a township constable.

Mr. STEWART. There is a great deal for the state inspector to do, aside from this. I do not understand that we are asking the United States to interfere with orchards or nurseries in the States. We simply want to protect the nursery against receiving anything additional, dangerous.

Now, some of these States have laws that are faulty, more or less. Some of them have officers that are not so effective in their service by reason of the amount of territory they have to cover, and their inability to reach everything, the smallness of the appropriation, and all that. There are a good many reasons. But they are looking after it a good deal better than some seem to think in some of these States, so far as my observation goes. A few years ago in West Virginia the peach yellows was a disease known by everybody that grows peaches north of Richmond, or about that, and it was about to destroy our peach industry. Our people have gotten together, and in connection with the experiment-station authorities there, have brought that absolutely under control, and they plant those trees there now with impunity, and in great quantities.

I want to introduce to you Mr. H. W. Miller, Mr. Chairman and gentlemen, who will speak to you from the standpoint of a very large grower of peaches and apples in West Virginia. I thank you for your kindness.

Mr. RUCKER. Before you go, Doctor, I want to ask you just this one question, If either one of these insects, the gypsy moth, or the brown-tail moth, has yet made its appearance in West Virginia, that you know of?

Mr. STEWART. No, sir; I am very glad to say that it has not.

Mr. RUCKER. I am, too. I just wanted to know.

STATEMENT OF MR. H. W. MILLER, OF PAWPAW, W. VA.

Mr. MILLER. Mr. Chairman and gentlemen, owing to the fact that your committee has thrashed over this matter thoroughly, I thought I would just write down what I had to say, and would not take up your time, but I want to say that I represent, in the various combinations

something like 2,000 or 3,000 acres of orchards, and nurseries as well. We stand on both sides of this question in this way, and I think I can speak from experience along these lines, and I will try to present the views of the orchardists and the producers in conjunction with the view of the nurserymen.

It seemed yesterday that some of the questioners were rather under the impression that this bill was gotten up as a project of the Department of Agriculture to provide some jobs for some entomologists, but I want to assure you that this bill comes upon the direct demand of the fruit growers—the producers of fruit. We want this bill passed to help us.

Mr. RUCKER. That is, the bill before the committee now, Mr Miller?

Mr. MILLER. Yes; or some such bill.

Mr. RUCKER. That is the bill that came immediately on the demand of the fruit growers.

Mr. MILLER. Yes, sir; at least from our State, and from other States as well, I think.

In regard to the brown tail and gypsy moths, I desire to call your attention to the fact of the tremendous cost that would be entailed on orchardists if they had to fight both of these pests. It requires 10 pounds of arsenate of lead to the barrel of spray mixture to successfully combat these insects. Now, that is about five times as much arsenate of lead as we have to use for any other insect that we have to deal with at the present time. Hence you will readily understand that this makes the spraying for this insect cost five times as much as it does for any other insect we have to combat at this time.

Another feature of this matter is that the amount of arsenate of lead that we can use can be used on the apple and on the European plum, but the foliage of the Japan plum and of the peach is so tender that it would be entirely destroyed if we used 10 pounds of arsenate of lead to the barrel on it; so that this really leaves the peach industry without any remedy at all, and if this pest is introduced we will simply have to lay down before it and let it go, because we have not got any remedy with which we could fight it on peaches at all. I wish to say this, further, in regard to the interests involved: There was something said this morning and yesterday about the capital invested by the importers and others in the business. They have a great deal of money invested, and do make contracts to supply us with stock, and we are glad to have them do it; but according to the last census it was shown that we had over 350,000,000 bearing trees in the United States in orchards. Now, of course, these orchards are held by thousands of growers, not by 200 or 300, but by thousands of growers, and I speak rather from this standpoint. This is the side that we represent more, though I am glad to say that I am interested in orchards, too, and sell stock also.

Mr. RUCKER. Let me say that I have no interest on earth here, and I do not want to be understood as a nursery advocate. I have no interest in the world, not the remotest, in this. I do not even buy trees from the nurseryman, because I have no place to put them. I wish I had.

Mr. MILLER. All right, sir; thank you. Now, we presume that the census of ten years ago having shown that there were 350,000,000 trees, the number is very much larger now, as the interests have

increased; and while there are provisions of this bill which some of the nurserymen allege would hurt two or three hundred importers and dealers in stock, yet the same provisions would add protection to thousands of growers and producers in the United States, and in the end we people who handle the orchards have to shoulder the burden of these pests. It does not amount to so much in the nursery, because we simply pull the trees up one year and have new ground and plant somewhere else next year; but when you plant an orchard you plant it for a lifetime, and as has been said, when you plant pears, you plant for your heirs; and it is that way in the orchard business.

I want to say in this connection we have one orchard that has been costing us \$2,500 a year to spray for the San Jose scale alone. We think we could have put that \$2,500 to very much better use if the San Jose scale had not been in our country; and the San Jose scale is one of these foreign importations. We have another orchard that costs us \$1,000 a year just to keep it in order, and the insect is a continual menace. If we let that orchard stand five years and go back to look after it, there will not be any orchard there; the San Jose scale will have eaten it up. And from the experience, as we gather, that our New England neighbors have had with the browntail moth and the gypsy moth, the San Jose scale is not a drop in the bucket beside them; it is only a little bit.

I want to say further that in most of our States horticulture is in its infancy, and the knowledge that is necessary to control these two insects is not generally diffused. Everybody does not know it. They do not know it half as well as they do the scale. The San Jose scale has been in there for twenty years. Hence we ask you to give us this protection, for with us this is an emergency measure. We think that in ten years from now our States will be much better qualified to handle these things, and that instead of the States asking aid of the General Government, they will be able to take care of themselves better as the interests grow, and we will both be able to work together to better advantage. Such States as New York and California might put up a stiff fight against the introduction of these two pests, and they might keep it out. We hope they will; we hope they will all keep it out. But the history of the case in New England goes to show that no State can successfully handle the pest after it is once established. I believe your appropriations will bear me out in that. I think the General Government is appropriating about \$250,000 a year to fight that pest up in New England now, and the state governments are adding the same amount, and they are not extinguishing it, and they are not getting rid of it. They are simply trying to hold it in check, and they are not even doing that.

In asking you to protect the growers, gentlemen, and the nurserymen as well, we are asking you also to protect the consumer. As you will readily understand, any pest that will make fruit growing five times as expensive as it is at this time will add, as Mr. Pitkin said, a great expense to the consumer. In other words, that would have to be paid by the consumer or somebody, if they have got to pay the bills to buy these things.

The question was asked yesterday if the States would do their duty if the National Government should take this matter up. I want to say that we do not ask the National Government to do what the States can do; we only ask that the National Government take

up the work where the limitations of the States are established. In other words, we would like to have it take up the work where the powers of the States stop. There are certain things we can not do. We can not go into the custom-houses and we can not get the oversight that we would like to have, and we would simply like to ask the General Government to do some things that the States can not do, and we feel sure that the States can do better work in conjunction and cooperation with the General Government than they can fighting separately. This we think has been conclusively shown in the management of the yellow fever in our southern ports, and in Habana and in the Panama states. There the state health officers working with the national officers have eradicated the disease almost entirely, and both sides are better off, both are doing better work than they would be by themselves; there is no doubt about that. We think this can be done just as well with this matter as in the health proposition.

One of the nurserymen stated here to-day that the nurseryman's business is a very risky business. We grant you that it is risky. He further stated that he did not care to have his business subject to the risk of quarantine. Now, I desire to say that there is no possible risk that could be as great to the nurserymen or to anybody else as the introduction of these two pests into the United States, if they act like they do up in New England. The risk to the nurserymen could not be as great as the risk of the whole country; for this matter is not simply a part of the work of the orchardists, but it is the work of the Forestry Department as well, and many of our forests would suffer just as much as the orchards.

The risk to the importer and nurseryman is small, as he has the stocks under his charge and can inspect them, if he will; but when they are spread out over thousands of acres of orchards and forests, it simply becomes impossible to successfully combat these pests, to inspect these things; and there is the end where we have to fight, in the orchards.

The gentleman has just asked something about the importation of stocks coming into New York. We believe that the New York people are doing good work in inspecting the packages that are opened in New York, but there are thousands of those packages, or hundreds at least, that are imported by nurserymen in New York and are never taken out of their packages and are shipped here and there and yonder, 5,000, 10,000, 15,000, or 200 or 500. They never are broken open for inspection in New York, and they stay there sixty days sometimes, and they are then shipped to Maryland and New Jersey and everywhere else; and hence New York does not take any account of these reshipments. That is one of the features we would like to have the General Government take cognizance of, to trace these shipments into the country and see where the ygo.

Mr. RUCKER. Will you pardon me if I ask you a question in that connection? I do not want to bother you until you get through, if you would prefer to wait until then.

Mr. MILLER. That is all right, sir.

Mr. RUCKER. Do you think if that stock was examined in New York before being reshipped the trouble would be remedied?

Mr. MILLER. I think that if it was properly examined it would be remedied.

Mr. RUCKER. If it is not properly examined in New York, suppose it is shipped into West Virginia without its being examined at all in New York; if it was properly examined in West Virginia would not that probably accomplish the purpose?

Mr. MILLER. We think it would, if we could be certain we got hold of all of these packages; but we do not get the history of them.

Mr. RUCKER. Those shipments are made to nurserymen, those of 10,000 and 12,000?

Mr. MILLER. You can buy them, or anybody.

Mr. RUCKER. Do orchardists buy them?

Mr. MILLER. All kinds of people buy them. Sometimes a man wants to raise 500 trees of his own, and he goes and buys them.

Mr. RUCKER. They graft them?

Mr. MILLER. Yes. There are plenty of our farmers who do not know a brown-tail moth and have not even heard of it, who are ordering those stocks in small lots, you know.

Mr. RUCKER. Yes. I want to ask you this: I understood you to say that sometimes from New York, for instance, original packages containing foreign importations, or importations from foreign countries, of what we call seedlings that have been described here, little things 8 or 10 inches long or 18 inches long, are shipped to the farmer, and he plants them out?

Mr. MILLER. I did not quite catch your question.

Mr. RUCKER. Possibly I did not make myself clear. I say I understood you to say that it sometimes occurs in this business of shipping and importing—importing and shipping fruit trees—that an original package from a foreign country, a box containing 10,000 or 12,000 or more little seedlings, is shipped, the original package, to the man who plants them out in the orchard?

Mr. MILLER. But he does not plant them in the orchard the first year, you understand; he may plant them in his orchard and grow his own nursery stock. Yes, sir; that is done.

Mr. RUCKER. Is that done in West Virginia?

Mr. MILLER. Yes.

Mr. RUCKER. Is that done by fruit nurseries over the State?

Mr. MILLER. No, sir; that is the jobber.

Mr. RUCKER. Now, I will renew my other question. Suppose under state inspection, if you have it, a competent man in the State would inspect that cargo or that shipment of 10,000 or 12,000 seedlings after it is in West Virginia; would he not be able to detect the moth?

Mr. MILLER. I think we would, as I say, if we had knowledge of its entry.

Mr. RUCKER. I know; I say if you have knowledge of it. Of course you could not inspect it if you did not have; but if you have?

Mr. MILLER. If we have, I think we can give it a good inspection.

Mr. RUCKER. That would give you all the protection you could expect from any source?

Mr. MILLER. If we could get track of those shipments.

Mr. RUCKER. I know; of course, if you could not get track of it you could not inspect it; but as I understand you, if you could happen to get track of it and could happen to inspect it, then you could happen to make as good results as the Government could make?

Mr. MILLER. I think we could; yes, sir.

Mr. HOWELL. Does the importer in New York break original packages and fill orders in any quantity in different parts of the country where he has orders?

Mr. MILLER. I do not know. I do not know just whether they do that often. As a rule, you simply send your order in to a broker's house, and he has it packed in France, 500 or 5,000 or whatever it may be, and he gets it into his house and holds it until it is time to ship, and then ships it to you.

Mr. HOWELL. If the original package was broken in New York by the importer, would it then be subject to inspection by the New York inspector?

Mr. MILLER. It ought to be. I do not know whether they would take cognizance of these reshipments. In case of breaking a package of 10,000 or 20,000 in order to get 5,000 out, I do not know whether they would do anything with it or not. It is quite likely they would not if it was going out of the State; they would think that it did not make any difference what landed over in West Virginia.

Mr. RUCKER. Suppose the law required that every package broken should be inspected?

Mr. MILLER. That would be a good strong provision in the law, if it was done.

Mr. HOWARD. The New York law does provide that if a package is broken it must be inspected in the State.

Mr. RUCKER. That is what I supposed. I beg your pardon for interrupting, Mr. Miller.

Mr. MILLER. One of the nurserymen spoke this morning about making contracts two years in advance of the time he was going to use the stock. It certainly seems to me that this would give him ample time to have the growers in France meet any requirements made by our department to get the stock into our ports. If there was anything wrong with the stock, inside of eighteen months or two years they ought to be able to find it out; and as far as the price is concerned of the stock, we believe that every grower, and I say this cautiously, of fruit in the United States would rather pay one-half more for his trees without the possible risk of introducing these two pests than to take the trees at the present price with any possible risk of introduction of the pests.

Another feature of this case is that we believe that these seedlings can be grown all right in the United States. As has just been said here, some of the best orchards we have got in West Virginia are on American-grown stocks, and one orchard I know of is producing and this year made \$1,800 an acre.

Mr. RUCKER. That man did not need much protection from the Government, did he?

Mr. MILLER. He would like to have it, though.

Mr. RUCKER. Certainly; I have no doubt of that.

Mr. MILLER. That orchard was grown on American stocks. This refutes the idea that we have to depend on France to do this work for us. We can do this work in America; and when it comes to a matter of risking production of this kind as against the production of the stocks, I think we can produce the stocks.

Mr. RUCKER. In that connection, are you engaged in the nursery business?

Mr. MILLER. To some extent; our nursery business is not as large as our orchard business.

Mr. RUCKER. Do you produce your own apple stocks?

Mr. MILLER. Not all of them.

Mr. RUCKER. Why do you not produce them all?

Mr. MILLER. We are like the other people; we think we can get them easier in France.

Mr. RUCKER. Is that the reason, that you can get them easier or that you can get them cheaper?

Mr. MILLER. We can get them easier and cheaper, too, that is true; but we could raise them here. We do raise them.

Mr. RUCKER. One of the gentlemen who testified before said that you paid more for them abroad than here.

Mr. MILLER. For the West Virginia stocks, I believe; for the same grade of stock.

Mr. RUCKER. For West Virginia stocks you think it would cost more?

Mr. MILLER. For West Virginia stock; it would cost more to grow them in West Virginia than to get them from France.

Mr. RUCKER. Does it not pay you to take your chances in getting these stocks and get them a little bit cheaper?

Mr. MILLER. We used to think we did not have any chance to take, but in the last few years this other matter has developed, and we are not willing now to take chances any longer. This matter of the moth has just come up in the last two years; I mean, it has been introduced on the nursery stock in the last two years.

Mr. RUCKER. The moth?

Mr. MILLER. Yes. Do not understand me to say that it has been originally introduced into the United States in the last two years, but on nursery stock we have just been finding it in the last two years.

Mr. RUCKER. It has been here longer than that, though.

Mr. MILLER. It has been up in New England for a long time.

Mr. RUCKER. It has been up there a long time, as I understand.

Mr. MILLER. But it did not come in, in the first place, on nursery stock. Now, one firm down here at Baltimore grew 300,000 first-class seedlings last year; and why can it not be done everywhere else? I saw good stocks on the Eastern Shore of Maryland, as good as I ever saw anywhere, fine and straight, and not a thing wrong with them, American-grown stocks, on the Eastern Shore of Maryland.

Mr. RUCKER. In that connection, let me ask you another question. You repeated this again; I thought we would pass from that. Do you give credence to what these gentlemen who deal in nursery stock on a large scale say when they say that they can get better stock abroad than at home, or do you think they do not know their business—are ignorant of it?

Mr. MILLER. No, sir; I do not say that. I think in large quantities they can buy good stocks over there. We have not the facilities at present for raising them. You could get good stocks here, but the industry is new, and we are in our infancy in that line.

Mr. RUCKER. At present could a nurseryman who wanted to buy seven or eight or ten million plants get them here?

Mr. MILLER. No, sir; I guess he would have to go to France for them, because the business has been developed by the Americans going over there and making their contracts.

In regard to the name of the receiver and the shipper being put on the package before it is allowed to enter the port, we believe with the Department of Agriculture that that is very necessary in order to trace the shipment to its destination. We believe it can be handled that way much better than any other way. We will know it from the time it starts over on the other side until it gets to its destination.

Futhermore, I desire to call your attention to the conditions which Germany imposes on our apples. A few years ago we sent some apples to Germany that had the San Jose scale on them, and some of them went out of Berkeley County, I am sorry to say. The Germans found it out and put up the bars and promptly notified us not to send any more such apples over there. What was the consequence? Two partial shiploads, something like 7,000 or 8,000 barrels in each ship, were turned down at Bremen, and they were taken back to Liverpool and London and sold at a loss. As soon as that knowledge came back here to our growers we immediately found it out, and the result is that to-day Germany gets all of our apples that are free of scale and England and Scotland get all of our scaly fruit, because we know that we can not carry it into Germany. This applies just as well to these insects over there. If we put up certain regulations here governing the inspection and shipment of stock into our country, the people of Holland and Belgium and France where this stock is grown will simply meet the requirements and send us clean stock, and there will be very little need for a quarantine. I doubt whether, after the thing is thoroughly understood over there the Secretary of Agriculture would ever have to use that power of quarantine after they got a knowledge of the fact that we would not accept the stock if it was not clean. They would clean it up first, and thus the burden would be put over in France, and instead of its being put on our farmers and fruit growers over hundreds and hundreds of acres they would have it in a little area over in France, where this stock is raised, where, maybe, a man will have a little garden of 2 or 3 acres, raising them, perhaps, with a spade, and his family helping him to do it.

I believe it was stated here this morning that the French would sell their stock somewhere else if we put the regulations up too high, or required too much; but I beg to differ from that statement. These contracts are made over there in France for delivery into America, and if they could not deliver them into America I do not think there is any other country on earth that would take the seedlings that France raises. It would not be possible. South Africa is planting a few trees and Australia is planting a few trees, but they have very stringent regulations now. In fact, we can not send our peach trees to Australia now on account of the yellows.

The CHAIRMAN. Do you export any nursery stock?

Mr. MILLER. No, sir; we have exported some of these seedlings.

The CHAIRMAN. Do you know whether nursery stock is exported in any quantities from the United States?

Mr. MILLER. No, sir; I do not think it is. Possibly Doctor Howard or some of these other gentlemen from the department could tell you better than I could. I do not know.

Mr. RUCKER. I heard one of the gentlemen here yesterday say—I do not know as to what, but I heard him make the remark in casual con-

versation, and I do not want to report him because I might do him an injustice; but as I recollect, he said that he shipped stock substantially to every country on earth. I remember he spoke of a good many countries.

The CHAIRMAN. I asked that question because the statement was made here; but the apprehension was expressed that if we should enact quarantine legislation France would, or the French exporters would, simply refuse to enter into a contract for the delivery of goods here, because they would argue that they could have no assurance by the time the goods were ready for delivery that they would be accepted. We were told at the same time that even more stringent regulations were imposed by France and other European countries against the importation into them of nursery stock from abroad, and I was curious to know whether those regulations had prevented our exporters from entering into contracts with French or German or Belgian importers.

Mr. MILLER. I am not able to answer that.

Mr. RUCKER. I can give you this little light I have, so far as I have information, from casual conversation. One of the gentlemen I was talking with said he had shipped without difficulty some nursery stock into France, and he also qualified it by saying that they were a small quantity for experimental use.

Mr. HOWARD. They must have been labeled something else.

Mr. RUCKER. I do not quite appreciate that, Doctor, because I am talking seriously, taking him to be an honorable gentleman.

Mr. HOWARD. He told me the same thing. I asked him how they were packed, and he said that he had forgotten.

Mr. RUCKER. I did not ask him about that, but it may be they were labeled "nutmegs," or something like that.

Mr. HAWLEY. Or "oysters."

Mr. RUCKER. Yes, or "oysters." But he said that those shipments were substantially for experimental purposes or something of that sort.

The CHAIRMAN. Proceed, Mr. Miller.

Mr. MILLER. The objection was offered to this law, to-day or yesterday, that it would cost a great deal to administer the law; that is, that the appropriation would not cover the administration of the law properly. Now, we believe it would be very poor economy to save on the administration of this law and to lose on our production all over the United States, which would come to pass if these pests should become fully established, as they are in New England. We have already imported into this country the San Jose scale and the coddling moth and many other pests, and they are very costly; and this pest we believe would cost the country ten times as much as any of these others if it costs anything like what it costs New England, and we believe that every dollar that the Government would spend in protection of the industry would be saved many times over, both to the producer and the consumer.

Mr. COCKS. What do you say about the impracticability of inspecting this stock at the port of entry? The nurserymen say it would be impossible to open these packages and put them up again after they were inspected and fumigated.

Mr. MILLER. I think that is largely true. It would be a difficult task, as was said here to-day. These stocks come over here during a period of about ninety days, and a ship brings a lot of them over

at one time, as ballast or something or the kind—they are a low-grade freight—and it would be a very hard task.

Mr. COCKS. They laid particular stress on the fact that it would be almost impossible to repack them in the same packages after they had been taken out and inspected and fumigated.

Mr. MILLER. It would be a hard task. We do not know how they do in Germany, but we do know they keep our apples out that have the scale on them. We just do not ship them over there, because we know they will be turned down. What Germany can do we could do.

Mr. COCKS. Some way could be provided?

Mr. MILLER. Yes; we presume that the measures of this bill ought to work, and if they did not work, we would have to come to Congress to amend them.

Mr. RUCKER. Before you leave this, I want to know if I understood you correctly awhile ago as to one matter. In speaking about spraying orchards, I think you spoke about one orchard that you happened to know, or did know, which you said cost about \$2,500 a year to spray?

Mr. MILLER. Yes; that is for the San Jose scale.

Mr. RUCKER. What?

Mr. MILLER. That was for the San Jose scale, one of our foreign importations.

Mr. RUCKER. That is an old friend of ours. We have had him here a long time.

Mr. MILLER. Yes; we are not on friendly terms with him, exactly, though.

Mr. RUCKER. No; you are fighting him.

Mr. MILLER. Yes.

Mr. RUCKER. Then you said if that money could be saved to the American fruit grower or the West Virginia fruit grower, or the fruit grower wherever he may be, that money could be expended for other matters more desirable and more profitable.

Mr. MILLER. Yes.

Mr. RUCKER. Is it your idea that this bill would relieve the orchardist over in West Virginia of that expense of spraying, \$2,500 a year?

Mr. MILLER. It would, for these two pests, the brown tail and the gypsy moths.

Mr. RUCKER. But you do not spray for those two pests?

Mr. MILLER. I know, but we are spraying now on account of this scale.

Mr. RUCKER. But you spoke of being relieved from that liability. Was it your understanding that this bill would relieve you from that liability?

Mr. MILLER. Not from that, but if we had had any such legislation before we knew of the scale, we would have been relieved of it at that time.

Mr. RUCKER. On the other hand, if we had known as much of the browntail moth and the gypsy moth when they first came into Massachusetts as we do now, Doctor Howard would not have let the thing light, hardly, before he would have been on it and exterminated it. [Laughter.]

Mr. MILLER. Yes.

Mr. RUCKER. Now, you gentlemen are afraid that these people will let these things get away and get over into your orchards?

Mr. MILLER. Yes.

Mr. RUCKER. This is simply precautionary? You are not suffering now?

Mr. MILLER. No, sir; we hope we are not.

Mr. RUCKER. I hope you never will, and I say that with all sincerity; but so far as present conditions are concerned, there is no emergency? This is a measure in anticipation?

Mr. MILLER. Except that the moths are coming in on our nursery stock.

Mr. RUCKER. Have they spread in your State, anywhere?

Mr. MILLER. They have not, sir; but there have been one or two importations.

Mr. STEWART. We do not know whether they have or not.

Mr. MILLER. But we do know that our importations, when we get them, sometimes have these moths.

Mr. RUCKER. Within what time has that been so?

Mr. MILLER. In the last two years.

Mr. RUCKER. For two years you have known of the dangerous character of these insects, and that they spread rapidly and accomplish complete devastation wherever they get established? You have known that for two years?

Mr. MILLER. I do not know that we have known it for two years. It took us the first year to get the idea into our heads.

Mr. RUCKER. I was just trying to get you back to the last time the legislature sat in your State, and see what effort you made to get them to do something about it.

Mr. MILLER. At that time we did not know it.

Mr. RUCKER. You did not know it?

Mr. MILLER. No, sir.

Mr. RUCKER. One other question. Suppose a law was passed here which would require notice from the transportation companies and the custom-house officials to the Secretary of Agriculture, and then the Secretary of Agriculture would notify the consignee of these shipments, to whatever States they might be consigned, and he would then call on his able assistant in that State to meet that shipment and to make a thorough inspection. Would not that answer the purposes that you fruit growers have in view?

Mr. MILLER. To the extent that it would be thoroughly done, I think it would.

Mr. RUCKER. I am assuming that the Secretary of Agriculture would not have anything incompetently done; and you gentlemen are assuming that it can not be done unless he does it. Is not that the provision of this bill?

Mr. MILLER. There are some other things to it.

Mr. RUCKER. I wanted to know whether that was what you wanted.

Mr. MILLER. As far as that goes that would be all right. We would like to have, also, the other provisions.

Mr. RUCKER. You are not satisfied with ample protection?

Mr. MILLER. We are not satisfied with a half loaf.

Mr. RUCKER. Oh, I see; but you have never, in your dire distress and your great anxiety over the threatened evils you see over every mountain top in West Virginia, coming right down on you, appealed to your legislature to raise a hand for you?

Mr. MILLER. Yes, sir; we have.

Mr. RUCKER. Where have you?

Mr. MILLER. We spent \$6,000 in three months for protection for other things.

Mr. RUCKER. But for these moths——

Mr. MILLER. Yes, sir.

Mr. RUCKER. I thought you said that you had not, for the moths.

Mr. MILLER. I say, since we knew the enormity of this pest the legislature has not been in session. We did not know that the brown-tail moth and the gypsy moth were coming in on nursery stock; in fact, they were not coming in on stocks, that we knew of. That is only within the last two years.

Mr. RUCKER. You did not know of them?

Mr. MILLER. No, sir.

Mr. RUCKER. So that I think we may at least indulge the hope that you in West Virginia will go to Charleston and knock at the doors of the state capitol until you get some relief for the conditions in West Virginia.

Mr. MILLER. But we want this now. This is an emergency measure.

Mr. RUCKER. You have not any now, but you are afraid they will come; and then I think you possibly have a little suspicion that the legislature may not appropriate?

Mr. MILLER. I beg to state that I think our legislature will be liberal.

Mr. RUCKER. You think it will be?

Mr. MILLER. Yes.

Mr. RUCKER. If you think it will be, under these conditions, will not that furnish you the relief that you need?

Mr. MILLER. We can not stop that moth from flying across the Potomac River from Maryland and Pennsylvania into West Virginia.

Mr. STEWART. We are very much obliged to you, Mr. Chairman and gentlemen. We do not want to take the time of the committee, and yet we have several gentlemen here who would like to say a word. I want to say, if it would not be too much of an imposition on you, that there are several of them, and I will request these gentlemen not to take up much of your time, because it was a very gracious concession for you to come up here and hear our complaint. I would like to introduce to you next Mr. Clohan, of Martinsburg, W. Va., who was president of our horticultural society and largely interested in fruit growing.

The CHAIRMAN. The committee considers that all of you gentlemen who have taken so much trouble to come here and give us the benefit of your experience or information have conferred a favor on the committee. We would be glad to hear from you.

STATEMENT OF MR. ALEXANDER CLOHAN, OF MARTINSBURG, W. VA.

Mr. CLOHAN. Mr. Chairman and gentlemen, probably I take a little different view of it from that which is taken by some of the others who have spoken, but I want to say that the first time we had any idea of the brown-tail moth being near us was when Mr. Symons, of Maryland, made his investigations and found it in nursery stock shipped to Maryland some time last summer after our legislature

adjourned. I want to say here that the West Virginia legislature has given to the fruit growers every protection and assistance that they have ever asked of them.

I think a vital part of this bill is what the nurserymen want to kick out most. If they do kick that out, I do not think it is worth while to pass the bill. That is the provision giving the Secretary of Agriculture the right to quarantine. I think that is the gist of the whole matter, and there is nothing else in it.

I want to take the most decided stand against the assertion of the nurserymen here that we have got to go to France for any seedlings whatever. I want to say that there is no call whatever for that. I want to say here that the best orchard in West Virginia, and perhaps I would not go too far if I should say the best anywhere this side of the mountains—that is, this side of the Rocky Mountains—is an orchard that was propagated totally from small pea-shoot grafts. I want to say that that orchard last year produced over \$1,800 to the acre, and that it was propagated before French seedlings were heard tell of. And I want here to say that in West Virginia the Point Pleasant Nursery Company sent to France for 50,000 seedlings, and when they came here they were of such poor quality that they threw them on the brush heap and used the Iowa seedlings, produced out there where they raise them by the millions and by the tens of millions; and there is no reason whatever why the country that produces men like Burbank and all these different orchardists in the United States, should go over to Europe to get any sort of stock whatever. I say more, that if there is any danger whatever of the introduction of brown-tail moths into the United States or into the States that are not now infested, it would be better that there was not another piece of nursery stock ever grown in the next five years, and I want to say that in all candor and in all truth. Take West Virginia, or Maryland, with her thousands of acres where the timber has been largely cut off and has now grown up in second growth, scrub, and everything of that kind; when those forests become infested with the moth, where the land is almost worthless, who is going to go out and search and destroy it there, to keep it from constantly coming into our orchards? It has been referred to here to-day by this gentleman who stood here this morning, and he said that out of 7,000 boxes there were 700 of them infested with the brown-tail moth. That is one in ten. When Mr. Miller spoke here, he was correct about farmers ordering direct and having the stock sent in to them. I think Mr. G. P. Miller, who is here now, has grown his own trees, and he has planted 100 acres within this year of his own growth, altogether; not any of it at all gotten from the nurserymen.

Mr. RUCKER. Would it interrupt you too much for me to make a remark there?

Mr. CLOHAN. Not at all; not at all.

Mr. RUCKER. I am sure you want to be entirely accurate, and I do not believe you quoted the gentleman correctly; I believe you referred to the gentleman from New York, Mr. Rouse. What he said was this. He said that out of the shipment of 7,000 boxes, with 10,000 or 12,000 plants, 700 boxes were found infested.

Mr. CLOHAN. Seven hundred boxes were infested; yes. I took it down just as the gentleman uttered it.

Mr. RUCKER. But you did not say at all what he was getting at. He said there were about 10 infested plants in the box; so that it was not the whole 10,000.

Mr. CLOHAN. No; I am not saying that. But 700 of these boxes were infested. If there was only one of those in each of the 700 boxes, the danger was there just the same.

Now, take the reference that was made to the foot-and-mouth disease. If Secretary Wilson had not had the power of quarantine at that time where would the foot-and-mouth disease ever have stopped in the United States? That is something that involved a loss to the farmer of two or three or four years, just as he puts his cattle onto the market; but when an orchardist is planting he is planting something, if it is the right kind of stock and is properly planted, that is going to exist after he is gone. The planting of a tree is of more importance than the breeding of a calf for that very reason. There is one thing sure, and there is no use for us to attempt to dodge around it, that we have got to pass a law by which we can go in and interfere with interstate commerce, and there is but one way to do that, and that is at the ports of entry; and there is but one man big enough to do it, and that is Uncle Sam.

When you get down to state inspection, we may do the very best we can, but it is an utter and absolute impossibility. I say, taking West Virginia, with Director Stewart, who has done more in our State to build up the State than anyone else, and to do everything, and it was an utter impossibility for Mr. Stewart to get competent inspectors—we did not have them trained—when the peach yellows were there and were going to spread and devastate everything he had to go out and do the best he could—get man after man; and some of those men condemned trees that probably were not infested with the yellows. There might have been a few mistakes of that kind; but last year he succeeded in wiping out, practically, the yellows. I think Mr. Miller could tell you that a good many carloads of peaches were shipped out of the State, and he could tell you what the returns were. I think, gentlemen, there are two ways to look at it. One is solely with the idea of protection for the orchardist. The other, I would say, and the broader one and the one that I stand for, although it may not be popular in these days, is on the tariff line. I am one for building up a new industry wherever it can be built up, and if I had my way the importation of French stock would be prohibited by putting a tariff on it so high that Americans would have to produce what they wanted. That is what I believe in, gentlemen, and I hope that these gentlemen will take that view of it. I think that is the proper view of it. I thank you very much, gentlemen.

Mr. RUCKER. I want to say right now that there are some communities in this country that are not agreeing with you on what you have said.

Mr. CLOHAN. I have noticed a little of that; but I am still a stand-patter on the tariff.

Mr. RUCKER. But you are not really serious in asking us to pass this as a tariff measure?

Mr. CLOHAN. I think it would be the best thing that could happen for the people of the United States. I say frankly that it would be the best legislation that could be passed in this matter, to simply

make a tariff statute, and put your tariff so high that it would be prohibitive.

Mr. RUCKER. Then I am "agin" West Virginia on that proposition. [Laughter.]

Mr. CLOHAN. I want to say just one thing more about infection. I did not intend to say this. I do not know whether you gentlemen know anything about nurseries; but here are a few trees that came into our nursery [producing trees].

Mr. RUCKER. Let me ask you, before you distribute them, if there are any brown-tail moths on them? [Laughter.]

Mr. CLOHAN. No, sir; but there is something pretty near as bad, and they came from a sister State, with a certificate that these trees had been inspected and were free from all injurious diseases. Mr. Miller has never seen these, and I will ask him, what is the trouble with those trees?

Mr. MILLER (after examining trees). I guess you ought to know. Those are not brown-tail moths, but that is crown gall.

Mr. CLOHAN (passing the exhibits to members of the committee). Those were inspected and passed on. That is one of the instances of our admitting into West Virginia something that another State says is all right. We admitted those into our State because we have no law that allows us to inspect, if the tag is on there from the sister State of Maryland or Virginia, or even Missouri. [Laughter.] In that case we allow them to pass; and I am going to say that those came from Missouri. [Laughter.]

Mr. RUCKER. The gentleman has hurled remarks at Virginia and Missouri and New York until I feel that I ought to resent them, but I want to say this, in order to reestablish myself, in order to prove my loyalty to the State I once lived in, that I am not going to fall out with the gentleman, though I can not agree with him on the tariff question. [Laughter.]

Mr. STEWART. Mr. Chairman, I want next to introduce to the committee Mr. David A. Arnold, of West Virginia, who is a member of the state board of agriculture and is personally largely engaged in growing very fine fruit.

Mr. ARNOLD. Mr. Chairman, I do not think I have anything to add to what has been said to-night.

The CHAIRMAN. We would be very glad to have you say anything you care to. Is there anyone else?

Mr. STEWART. Yes, sir; Mr. Frame, of Martinsburg, is much interested in the same subject. He may have something to say to the committee.

STATEMENT OF MR. N. T. FRAME, OF MARTINSBURG, W. VA.

Mr. FRAME. Mr. Chairman and members of the committee, we planted something over 50 acres in apples this spring, and we were very much stirred up, as the rest of the West Virginians are, over the possibility or the danger of the importation of the brown-tail moth. We were familiar with what that insect did up in New England, having some good friends up there, and knew what the pest does, and we looked that stock over very carefully and we found a cocoon which was suspicious to us, and we destroyed it. I do not know that we had a brown-tail or a gipsy-moth cocoon, but from what had been

described to us in New England we were afraid we did have, and rather than run any risk at all we burned it up, following the best advice that had been given to us, in our judgment.

We feel in West Virginia that there is danger of this importation. The other States where there are large nursery interests are in the same danger. For instance, I remember reading a report that they have been found on importations opened up in Michigan. I do not know how stringent the Michigan laws are about the reshipment of that stock. They have been found in New York and in Maryland, and there are other large nurseries which import stock in other States besides New York; so that while the New York laws may be stringent enough to protect us fairly well in West Virginia, it is possible for a nurseryman to start in business on a large scale in a State where the laws are not stringent enough to protect us, and we, as fruit growers, feel that this measure would be a very great assistance; and we believe that as it is drawn—and we have studied it over—it would practically guard us against that danger. We are also interested in the ability, under the law, of the Secretary of Agriculture to quarantine other sections of the United States as well as shipments that go into interstate commerce. We are not entirely satisfied that all of the States have laws which give them proper supervision of nursery stock that is going into those States.

Mr. HAWLEY. Do you remember where the stock came from that you found this cocoon in?

Mr. FRAME. Maryland.

Mr. RUCKER. It came from Maryland?

Mr. FRAME. Yes.

Mr. HAWLEY. Did you find any others?

Mr. FRAME. No, sir; just that one. We were just suspicious. I am not saying that that was one. I say we were suspicious of that one and we burned it up; we were afraid of it, and we did not dare run any risk.

Mr. RUCKER. Had that stock been inspected before it left Maryland?

Mr. FRAME. Yes.

Mr. RUCKER. Did it bear any certificate of inspection?

Mr. FRAME. I do not know. I myself did not open up the package, but I am pretty sure that it bore the certificate of inspection from Maryland.

Mr. CLOHAN. The railroad company is not allowed to receive them unless they have that certificate.

Mr. RUCKER. I just suggested that, because I know that Maryland is under a rigid and thoroughly competent supervision, and that demonstrates that even the Department of Agriculture might occasionally permit something to escape its vigilance, too.

Mr. FRAME. That would be a possibility; but we would feel doubly guarded if we had national supervision.

Mr. RUCKER. In other words, you want one more?

Mr. FRAME. How is that?

Mr. RUCKER. You want one more inspection?

Mr. FRAME. Besides the two?

Mr. RUCKER. Yes.

Mr. FRAME. No; two inspections ought to do it.

Mr. HOWELL. Are there any diseases or pests that the orchardists have to combat that have their origin in the United States?

Mr. STEWART. Yes, sir. At least I am not an entomologist, but I understand the coddling moth is a native of this country.

Mr. HOWARD. No, that was imported. The plum curculio is a native pest.

Mr. STEWART. Mr. Chairman, Mr. Rumsey, entomologist of the agricultural state experiment station of West Virginia, perhaps has something to say to the committee.

**STATEMENT OF MR. W. E. RUMSEY, ENTOMOLOGIST OF
THE AGRICULTURAL EXPERIMENT STATION, MORGANTOWN,
W. VA.**

Mr. RUMSEY. I do not know, Mr. Chairman, that I have anything to say. The insect side of this was thrashed out yesterday, as I understand, by the Chief of the Bureau of Entomology, Doctor Howard, and his assistant, Mr. Marlatt. I can say that as far as inspection of imported stock through New York State is concerned, we got word that there was a shipment coming to one of our nurseries in Mason City, and another one to R. Harris's nursery, but the latter did not come to our State. R. Harris has moved his nursery principally into Tennessee. The inspection was such that at Mason City I made a careful hand inspection, and it only revealed the remains of one nest of the browntail moth. That was only a part of a nest. It looked as though it had been ripped off by some inspector across the water, and there was only a part of the nest there, and it only had about three or four of the caterpillars in it.

Mr. RUCKER. Was that the original shipment from abroad?

Mr. RUMSEY. That was the original shipment, which came direct. The New York people were kind enough to notify us when the shipment came into the port of entry at New York, the authorities at New York notified the stations of the States where that was to be consigned, giving the name of the nurseryman, if they could get it, and the place where it was going.

Mr. HAWLEY. Did that shipment come from France?

Mr. RUMSEY. That came direct from France, and was not opened until I went to the place where it was to arrive, and it was opened after my arrival and inspected.

Mr. HAWLEY. It was not opened after it left France?

Mr. RUMSEY. It was not opened until it reached its destination, Mason City, W. Va.

Mr. RUCKER. How many trees were there in that shipment?

Mr. RUMSEY. 30,000, I believe.

Mr. RUCKER. And you found one nest with some insects in it?

Mr. RUMSEY. About three.

The CHAIRMAN. Is there anything further?

Mr. STEWART. I had one more gentleman here, but he seems to have escaped. For all of these gentlemen I thank you, Mr. Chairman and gentlemen, for your kindness.

The CHAIRMAN. Mr. Stewart, I notice there are a number of gentlemen, including yourself, from West Virginia. May I inquire whether you come here as a committee, at the request of some organization?

Mr. STEWART. Yes, sir; the orchard people there and the representatives of the state horticultural society and several of the country

societies combined and had a meeting down there and appointed a committee, of which these gentlemen are members, with the request that they wait upon the Secretary of Agriculture and anyone about Congress who would listen to them, and see if they could not get something that would give us assurance. It is not only protection we want for those who have already put their money in, but we do not want any scares, because we believe in the future of our State as an orchard State. Apples are worth so much money, Mr. Chairman, and we are looking to this as a source of great income, and we do not want anybody to be scared away from it.

The CHAIRMAN. Was that committee you speak of appointed after it was known that this bill would be taken up for consideration before this committee, and were you asked especially to appear here in support of this bill, or were you just sent down here for general results to bring the matter to the attention of the Department of Agriculture and of others who might be interested?

Mr. STEWART. No, sir; we were not specially instructed, because at the time this committee was appointed we did not know that this bill had been introduced. In fact, I do not think it had been. We did not know of it if it had been.

Mr. FRAME. It was before February 15. I have the minutes here in my pocket.

Mr. STEWART. We had instructions to look around and see if there was anything that could be done to get additional assurances for ourselves, particularly at that time, as to this browntail moth, because of a publication from the inspector in Maryland, who said he had found a number of them—several hundreds.

The CHAIRMAN. So that your horticultural people in sending this committee here to Washington were not inspired by any propaganda in favor of this bill, but the movement originated in your State?

Mr. STEWART. Yes, sir. Nobody asked us to come down here. We were very much interested in this, and we are interested in this bill. We do not pretend to know so much about it as to be able to say that this is just the measure that should be passed. I think there ought to be, of course, competent legislation on this, which will get results, and if the nurseryman is a little bit annoyed or a little bit injured, to the extent of being forced to charge a little bit more for his trees, I do not believe he would hesitate to do it. They have doubled the price in the last two years, and I should not be surprised if they doubled it again.

Mr. CLOHAN. I can tell you how we happened to come here. The president of our state society, Mr. Cornwell, called a meeting in Martinsburg and read the paper that had been gotten out by the Maryland people and appointed a committee to call on Secretary Wilson, and we called on him and we called then on Mr. Sturgiss, and after we got home Mr. Sturgiss sent me a letter in which he stated that Mr. Simmons had introduced a bill some time in December, and it had been referred to the Committee on Agriculture, which he thought would answer the purpose; and I wrote to Mr. Simmons to send down copies of the bill to 10 or 12 of our orchardists, and we went over the bill and thought it would answer everything that we would ask; and that is what interested us in the measure.

The CHAIRMAN. I am advised that Mr. Phillips is present this evening, and I think perhaps he would like to say something.

STATEMENT OF MR. J. L. PHILLIPS, ENTOMOLOGIST OF THE STATE OF VIRGINIA.

Mr. PHILLIPS. While I am entomologist of the State of Virginia, I am also secretary of the Fruit Growers' Association there, known as the Shenandoah Valley Fruit Growers' Association. This association had a meeting early in the winter before this which is just past; that is, the winter of 1908-9, and we had then just learned of the large importations of the browntail moth into New York. This matter was thrashed out there and was at once taken up through myself, the secretary, and the president of the association, with Secretary Wilson, Doctor Howard, and the members of the Committees on Agriculture, both of the Senate and of the House of Representatives, to get this matter started, and very soon after that the bill of last session was introduced. The members of this association were very urgent that something be done, and I am sure if they had gotten word or knew about this hearing they would have had a special representation here besides myself; but the matter has been so well thrashed out that I do not think Virginia can add much to what West Virginia has said on the subject.

Mr. RUCKER. Just one word to supplement what West Virginia said. What was the date when you say you first took this matter up with these gentlemen down in Virginia?

Mr. PHILLIPS. I can not give you the exact date.

Mr. RUCKER. About what time was it?

Mr. PHILLIPS. It was just before the bill was introduced at the last session of the House.

Mr. RUCKER. Then you immediately came to see the Secretary of Agriculture?

Mr. PHILLIPS. We at once took it up by correspondence with the Secretary of Agriculture.

Mr. RUCKER. And have pursued such course as you thought wise to secure national legislation since then?

Mr. PHILLIPS. Yes.

Mr. RUCKER. What effort did you make with your state legislature last year?

Mr. PHILLIPS. Last year? We thought we had sufficient law to take care of what came into the State, and we simply considered—

Mr. RUCKER. Do you get all the appropriation you need?

Mr. PHILLIPS. No, sir; we would like to have a good deal more.

Mr. RUCKER. Did you ask the legislature for any additional appropriation?

Mr. PHILLIPS. We have asked them several times in the last few years, but they have not added anything to the appropriation. We hope they will do so soon. We get a fairly liberal appropriation; we have \$8,000 a year.

The CHAIRMAN. Are there any other gentlemen here who want to be heard?

Mr. HAWLEY. We want to hear from the seat of war before we close.

STATEMENT OF MR. T. D. SYMONS, ENTOMOLOGIST OF THE STATE OF MARYLAND.

Mr. SYMONS. I just want a moment, sir. I want to ask the indulgence of you gentlemen first to correct a statement made by Mr. Pitkin, the nurseryman, this morning. I would have made this suggestion at the conclusion of that meeting had I not expected Mr. Pitkin to be present this evening. He remarked that this bill which was presented for the record was indorsed by the Association of Horticultural Inspectors. I would ask the amendment of that remark, to the effect that the bill that was presented was not considered by the inspectors, but a bill drawn along those lines was presented, and the principles of the bill indorsed, the details to be worked out by a committee from the Nurserymen's Association in conjunction with the Bureau of Entomology. In other words, the Association of Horticultural Inspectors have not had an opportunity to consider the different measures presented in the present bill before Congress, and of course, as chairman of the committee of that association, I would not assume this action, but from a knowledge of the men, and the work in which I am engaged, generally, we are, as I have stated, in favor of these general sections, and the main point of objection, namely, the quarantine, is for you gentlemen to decide.

I would also add somewhat as an explanation as to the remarks made with regard to the Maryland inspection work and the Maryland bulletin, and for explanation to the gentleman from West Virginia, for whom I have the greatest regard and to whom I have not had an opportunity to explain this. You will remember that I referred particularly to the issue of the bulletin from the experiment station.

Mr. HAWLEY. Mr. Chairman, if the gentleman will state who he is and what business he is in and whom he represents, I think it would be well.

The CHAIRMAN. Mr. Symons addressed the committee this morning. He is entomologist of the State of Maryland.

Mr. SYMONS. I would add that I represent the growers as well as the nurserymen, as I said yesterday. I am speaking for all the interests in a certain way, as we consider it.

Upon the importation of these seedlings and the finding of the brown-tail nests, we considered it a duty in Maryland to advise the people at large that there was a possibility, last January, of private importations coming in, by several parties, and the possibility of the insect escaping in any particular locality, and that called for the issue of a bulletin stating what the inspection service had done. It would seem that the West Virginia people did not receive this bulletin or observe it until last December, when it had been published eight months. They then took immediate action and became scared from purchasing nursery stock from Maryland. I mention this detail so as to show the need of national legislation, so as to explain these matters and prevent a discrimination, not intended so, but truly so. That is to say, these West Virginia gentlemen, or the West Virginia orchardists, were in fear of purchasing nursery stock of Maryland because I had found nests of the brown-tail moth on imported nursery stock.

The CHAIRMAN. And had been frank enough to say so?

Mr. SYMONS. And had been frank enough to say so. But I will not claim that honor alone. At least a dozen or fifteen other States had done likewise. But it happened that they did not get those bulletins, and they simply thought that it was from Maryland or possibly New York. Of course, there has been a general importation of these things, and there is just as much danger, if there was a danger, in getting stock from Michigan or Iowa or New York or Pennsylvania, or any of the Eastern States, as there was in getting it from Maryland; and, as I have tried to point out, the danger was greater from States where they did not have an efficient inspection service.

So that the remark of the gentleman about receiving a shipment of trees with several caterpillars on it can be explained in this way: These nests come into the State on nursery stock. I inspect each tree and destroy all of the nests. There is no room for the insect to get out into the nursery, so far as possible. And if it should have gotten out there, I would find it in the nursery inspection the following summer; in other words, I would have found it this last summer. So there was no danger of importing the pest upon trees that were grown in the nursery.

Mr. HAWLEY. Do you, as the state inspector, go to the nurseries and examine all the stock in the nurseries?

Mr. SYMONS. Yes.

Mr. HAWLEY. That is what I understood you to say.

Mr. SYMONS. Yes, sir; that is our duty, annually—in fact, semi-annually—in our State to inspect all the growing nursery stock, and issue a certificate to the nurseryman to sell trees. Now, it was not possible to receive the brown-tail moth on those trees that were grown in the nursery, because, in addition to the inspection of the seedlings in the beginning and destroying the nests, we had inspected the nursery later in the summer, when any possible outbreak of the pest would have become apparent by the caterpillars coming out and eating foliage in the nursery.

Mr. HAWLEY. Do you know of other States that have inspection laws requiring a semiannual inspection of all nurseries in the State?

Mr. SYMONS. Yes; the majority of the States have such laws.

Mr. MILLER. Not all of them.

Mr. SYMONS. But the inspection is not as efficient in some States as in others, due to different conditions, as has been stated here, such as the large number of nurseries, and lack of appropriation. So I simply mention this, that these gentlemen were honestly afraid of stock from Maryland, when if there had been a national law, they could have easily found out the exact status all over the country, and would have understood it more, and would not have discriminated against Maryland, when it was not fair to do so; because you could not get the pest upon trees that were grown in the nursery in any State having an efficient inspection service; because I would not for a moment grant a certificate to any nurseryman who had had the pests and in whose nursery they had become apparent the following summer.

Mr. RUCKER. In this case the nest went from the nursery in the State, without having been set out in that nursery, as I understood?

Mr. SYMONS. No; the gentleman from West Virginia stated that he had received a shipment of fruit trees from a Maryland nursery that contained a cocoon that was suspicious, or that looked to him

suspicious, and the point I make is that we would have found the brown-tail moth in the nursery that summer, and the trees were shipped in the fall, and of course we would shut down on anything going out from that nursery; and I was simply saying now that there was no probability of that cocoon being that of a brown-tail moth, because the pest had never been established in the State, due to the thorough inspection and the killing and the destroying of the nests. But it points out that there should be a larger force to explain these matters and prevent any supposed discrimination between the States, when it was not justly due.

Mr. HAWLEY. What is your opinion of section 8 of this bill?

Mr. SYMONS. Section 8 I consider a very wise provision.

Mr. HAWLEY. Just as it stands?

Mr. SYMONS. Just as it stands.

Mr. RUCKER. That is the quarantine section?

Mr. SYMONS. Section 8 is the quarantine section. Certainly we should have no apprehension that any unreasonable action would be taken by the Secretary of Agriculture, hurting any particular interest in this country, if it could absolutely be avoided.

The CHAIRMAN. Would you regard the bill as of any value if it should be passed without that section?

Mr. SYMONS. Yes, sir; decidedly so. I would much rather have the bill without that section than to have no bill at all, because the stock is to be inspected, if you did not have that bill, and if it is impossible to have that section as it is, which as I say I believe is very desirable, it should be amended along the line of suggestions made by Mr. Pitkin this morning, which would hold it up in a very safe way; that is, to the extent of putting it in the bill, if the nurserymen are very desirous, to apply to such plants as may be affected, or letting the Secretary of Agriculture give such a permit and advising him that those trees would be destroyed when they come in. However, in my opinion there is no reason to anticipate entirely unreasonable action on the part of the government officials in quarantining a whole section, and cutting off the importation of seedlings of apples, for instance, when they want to prevent pines coming in.

Mr. RUCKER. As you understand the bill, the Secretary could quarantine against pines without quarantining against other stock, or he could quarantine against apples without quarantining against pines?

Mr. SYMONS. He could, in its present shape; but the nurserymen are afraid that if he wishes to quarantine against pines he will simply quarantine against the whole district and not allow them to ship anything out of it. That is the bone of contention.

The other point that is mentioned here, the inspection at destination, is very necessary. In other words, I think the inspection at the port of entry is impracticable.

Mr. RUCKER. Is it not utterly impossible?

Mr. SYMONS. It is almost impossible. I would not say it was impossible, Judge, because when you say it is impossible that is a very broad term. But take what has come into our State. One nurseryman has imported 2,000,000 seedlings, and they have come in in a very short time. That was one single nurseryman who imported those 2,000,000 seedlings. All of that stock dropped on the New York port must be inspected within a reasonable time,

that is to say, within a month, and it would take an enormous outfit of both men and buildings for any government to undertake to inspect it, because the European people, who are the packers, seem to be far superior to us in packing nursery stock. In other words, if we undertake to open up a box of seedlings containing 12,000, we can not get them back in two boxes.

Mr. RUCKER. Two boxes of the same size?

Mr. SYMONS. Yes; because they have unusual means of packing those seedlings. So that requires a place at their destination where you can let them out in a large warehouse, and clean everything around the place so that you can destroy everything and avoid any danger to the seedlings.

Mr. HAWLEY. If the trees were inspected at the port of entry, would not they likely suffer danger to their vitality if the boxes were opened.

Mr. SYMONS. That is the point I make, that in addition to the cumbersomeness of the job, there is danger from weather conditions which we have to consider in our own State. Take a particular nurseryman, and he would not want them handled more than once, because when you open up the boxes, you are exposing them to winds that dry the roots, and you are endangering the plants.

Mr. STEWART. Would not the examination by the assistant of the Secretary at the nursery, if the original package was not disturbed, be constructively an examination at the seaboard; in effect would it not be the same thing?

Mr. SYMONS. Yes; I agree with you; but you see, there was opposition. It was understood once that it was to be inspected at the point of entry. The gentleman from New York who spoke to-day made that point, a while ago.

The CHAIRMAN. We are very much obliged to all of you gentlemen for the information you have given the committee.

Mr. RUCKER. I would like to ask Doctor Howard one or two questions. Doctor, since you began your efforts to exterminate the gypsy moth or the brown-tail moth, up in Massachusetts, I believe, principally, has it spread over a large area, or is it confined?

Mr. HOWARD. We have confined it pretty well.

Mr. RUCKER. Your judgment is that it has been confined, and is not extending itself?

Mr. HOWARD. The gypsy moth is extending very slowly northward. Isolated outbreaks have been discovered in two cases to the east, but no general advance along the western line. The brown-tail moth, flying rapidly, has spread quite rapidly through the northeast, up into Maine, in the direction of the prevailing winds at the season of the year when it is flying.

Mr. HAWLEY. That is in June?

Mr. HOWARD. Yes; in June.

Mr. RUCKER. As I understand you, the brown-tail moth is spreading?

Mr. HOWARD. In that direction, but not toward the west.

Mr. RUCKER. Not toward the west or south?

Mr. HOWARD. Yes.

Mr. RUCKER. But toward the north and east?

Mr. HOWARD. Yes.

Mr. HAWLEY. As I understand, Mr. Chairman, it was the understanding at the session this morning that the representatives of the

Department of Agriculture should consult with the nurserymen, and make an effort to come to an agreement. I would like to know if such an effort has been made, and if so, what is the result of it.

Mr. HOWARD. We had a conference this afternoon, and the nurserymen expressed themselves as perfectly satisfied with all of the bill except section 8. That is, they did not intend to oppose the passage of the bill except section 8, which provides that the Secretary of Agriculture may quarantine against foreign districts. They simply say that if that section stays in the bill they are opposed to the bill.

Mr. RUCKER. Will you kindly tell us what you said to them in regard to that section? If it goes out of the bill, you do not want it?

Mr. HOWARD. We consider that the most important section of the bill.

Mr. RUCKER. The bill would not be worth anything if that goes out?

Mr. HOWARD. No; no.

Mr. RUCKER. Did they make any suggestion regarding section 8? Supposing the committee would report the bill without section 8 in it, did they have any amendment they would like to have inserted in place of section 8?

Mr. HOWARD. No, sir.

Mr. RUCKER. They made no suggestion?

Mr. HOWARD. No, sir.

The CHAIRMAN. Will you express to the committee your opinion as to whether the bill would be of value if it should be enacted without section 8?

Mr. HOWARD. The bill, so emasculated, would be of value to the country without section 8.

Mr. RUCKER. You say it would be?

Mr. HOWARD. It would be of value to the country without section 8.

Mr. RUCKER. I did not understand you then a while ago in answer to my question. I asked you if section 8 were struck out whether the remainder of the bill would be worth anything, and I understood you to say no.

Mr. HOWARD. Oh, no.

The CHAIRMAN. Did you ask him if he made that statement to the nurserymen?

Mr. RUCKER. I beg your pardon, Doctor; I wanted to be clear about that. I misunderstood you.

Mr. HOWARD. Section 8 is very much more important from the standpoint of plant diseases than from the standpoint of insects. The plant-disease men insist that that is a vitally important section of the bill. If you care to hear any remarks from them on that, some of them are here to-night.

The CHAIRMAN. I think, in view of the lateness of the hour, we will not consume any more time now. I understand these gentlemen are here and can be called upon later.

Mr. HOWARD. The committee or the subcommittee can reach them at the Department of Agriculture at any time.

The CHAIRMAN. We will ask them then to hold themselves for our call later on, if it is desired.

(At 10.30 o'clock p. m. the committee adjourned.)

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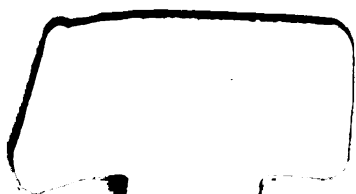
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